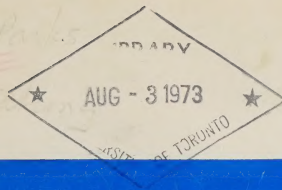



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Fathom Five Provincial Park

Ministry of Natural Resources, Division of Parks

Hon. Leo Bernier
Minister

Walter Q. Macnee
Deputy Minister



Study Team

Strong Moorhead Sigsby Limited

Landscape Architecture, Resource Planning
and Study Co-ordination

R.S. Strong
S.M. Moorhead
J.A. Dobbin

Shore Tilbe Henschel Irwin

Architecture
S.V.E. Irwin

Donovan F. Pinker Consultants Ltd.

Regional Planning
D.F. Pinker

W.A.T.E.R. Associates Ltd.

Aquatic Biology
W.L. Bell

Acknowledgements

Director, Park Planning Branch
T.E. Lee

Supervisor of Park Master Planning
R.L. Mitton

Project Planning Director
R.E. Pfister

Superintendent, Cyprus Lake Provincial Park
G.E. Martelle

Interpretive Planner
F.C. Barbetti



Strong Moorhead Sigsby Limited

**Landscape Architecture
Resource Planning**

45 Colborne St.,
Toronto 215
(416) 366-9238

Mr. Tom Lee
Director, Park Planning Branch
Ministry of Natural Resources
Queen's Park
Toronto, Ontario

April 1st, 1973

Dear Mr. Lee:

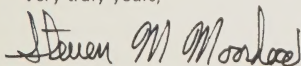
We are pleased to submit recommendations on planning and policy for the development of Fathom Five Provincial Park. Throughout the Study, two basic objectives have been considered — (1) provision of a park for the citizens of Ontario which brings to life the excitement, educational values and recreation potential of this underwater environment in context with its cultural and physical surroundings, and (2) the determination of proposals which preserve and enhance the unique character of the Tobermory region.

Serious effort has been made to reconcile the diverse attitudes of various interest groups while maintaining an overall perspective and realistic understanding of the future demands on the area. Having pursued an open Study absorbing the widest possible public contribution, it is evident that the specific desires of each interested group may have to be compromised to some extent. In this regard, we wish to specifically thank the St. Edmunds Township Council, the Ontario Underwater Council, the St. Edmunds Property Owners Association, the Dunks Bay Property Owners Association, the Tobermory Boat Operators, as well as other groups and individuals who have taken the time to discuss the project with us or provide written comment as requested in the Interim Statement of December 1, 1972. These comments and contributions have been carefully considered in preparing this report.

These proposals provide a framework which will allow logical development of the Park objectives, while maintaining the ability to respond to unforeseen future demands and management requirements. Basic objectives must be firm and attainable while permitting for innovative and sympathetic implementation on a day-to-day basis.

We feel that Fathom Five Provincial Park will make a significant contribution not only to the Ontario Provincial Parks System but also to Canadian parks in general and we look forward to its successful development.

Very truly yours,



Steven Moorhead

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Introduction

The emergence of underwater parks around the world is a fairly recent concept, for only lately has man not taken the marine resource for granted.

In an outlying peninsula of Southern Ontario, unhurried by the rush of the 20th Century, may be found some of Ontario's richest marine heritage. Beneath the waters of Georgian Bay and Lake Huron which surround the Bruce Peninsula, and within sight of Tobermory, lie the "Shipwrecks of the Bruce". With them are stories of trade and commerce, of men and the sea, and a silent, unsung saga of Ontario history. This rich marine history and the many natural resources of both the aquatic and terrestrial environment with respect to geology, limnology, biology and climate make this a superb setting for an underwater park.

Basic to the concept for Fathom Five Provincial Park are the following considerations:

- In Fathom Five Provincial Park, as with terrestrial parks there will be an opportunity to develop a broad range of activities within carefully defined ecosystems or "Resource Units".
- The Water Base component in Fathom Five Provincial Park is complimented by a Land Base which serves as the place of orientation from which all activities originate.
- Further to the concept is recognition of the dynamic nature of the aquatic environment. For example, to maintain a high water quality level within the Park and adjacent areas is essential but more difficult than the maintenance of a comparable level in a terrestrial environment.



Niagara Escarpment - Georgian Bay



● Tobermory — South Baymouth
Ferry (Norgoma)

1. Context

1.1 Setting

The Bruce Peninsula is a 60-mile jetty of rock, forest and farmland dividing Lake Huron and Georgian Bay. Throughout the Peninsula there is much evidence of the geological past found in the surface rocks, fossils, caves and flowerpots. This area has some of the most rugged terrain in Southern Ontario and is the habitat of black bears, massasauga rattlesnakes, white-tailed deer, turkey vultures, and broad-winged hawks. The diverse vegetation of the Bruce includes many rare ferns and orchids; wildflowers such as Indian paintbrush, and yellow ladies-slipper; wet sedge marsh species, dry shrub rockland species, and coniferous-deciduous species such as fir, cedar, larch, white spruce, balsam poplar, and white birch.

The western shore of the Peninsula is flat, dotted with marshes, cedar swamps, and ridges of sand dunes parallel to the shore. Dense tracts of mixed woods, small lakes and underground streams are found throughout the interior of the Peninsula.

The eastern shore of the Peninsula is a jumble of limestone blocks, talus slopes, and caves with much evidence of continuing erosion and deposition by ice, waves, currents and weather. The underwater topography reveals many of the same contours and characteristics as the land above. The Niagara Escarpment slips underwater in the vicinity of Dunks

Point, becoming an underwater geomorphological feature that reappears on Flowerpot Island, Bears Rump Island and again on Manitoulin Island.

At Fathom Five Provincial Park there is an opportunity to introduce many aspects of the Bruce Peninsula to visitors, giving them a rich impression of the regional setting of the Park. Tobermory and the Park are located at the tip of the Bruce Peninsula and will therefore become the focus of recreational activity. Fathom Five is currently the only provincial park predominantly based on the aquatic environment with boat tours, scuba diving, snorkeling, shipwrecks, history and folklore as integral and exciting parts of the total Park experience. The Park will provide a setting for these activities and will set a quality standard for the development of other facilities in the area, maintaining the unique and appealing character of Tobermory.



USA

Sault Ste. Marie

Sudbury

Quebec

Algonquin

Ottawa

Fathom Five

Georgian Bay

Lake Huron

Lake Ontario

Toronto

Kitchener

Hamilton

USA

London

Sarnia

Windsor

Lake Erie

* Provincial Park

1:1 Setting

1.2 Access

1. Vehicular

The main road to Tobermory is from the south via Highway #6 — a straight, well-surfaced road with an alignment that is generally unsympathetic with the scenic potential of the Bruce Peninsula. Perpendicular to Highway #6 are several picturesque rural sideroads. The northern vehicular approach to Tobermory is by a car ferry from South Baymouth on Manitoulin Island that operates from early spring to late fall.

Most sightseeing tourists who use the ferry service follow one of two major routes traversed in either direction:

- A. A circular route commencing in the Golden Horseshoe area, travelling through the Bruce Peninsula, Manitoulin Island, Sudbury and via the eastern shores of Georgian Bay and back to the point of origin;
- B. A circular route commencing in the Detroit/Windsor area travelling through the Bruce Peninsula, Manitoulin Island, Sault Ste. Marie, across the Mackinaw Bridge and back to the point or origin.

Statistics show that on the average summer day there is a steady decline in traffic volume on Highway #6 northbound from Wiarton. The 1971 traffic volumes show 4,900 vehicles per day at Wiarton, 2,750 at Lion's Head, and only 1,200 at Tobermory. Therefore, at the present time, only one-quarter of the people who travel as far as Wiarton continue on to Tobermory.

A combination of poor access from major metropolitan areas and frequent long delays on the ferry has caused many potential vacationers to steer clear of the Peninsula. With announced improvements to the ferry, improvements to highways south of the Peninsula, and the proposed Fathom Five Provincial Park, many more people will be attracted to the area. Therefore, it is important to organize and absorb automobile traffic in a logical and sensible manner. Highway graphics on the approach to Tobermory is an important consideration in this respect.

Translating 1,200 vehicles per day at Tobermory into people gives a total of some 268,000 people in and around Tobermory during the July/August period—(no. of vehicles) 1,200 x (no. of days) 62 x (no. of persons per vehicle) 3.6 = 268,000.*

At the present time, there is no bus service to Tobermory and the number of recreational cyclists using Highway #6 is steadily increasing.

Approximate distances to Tobermory from:

Sudbury	— 115 miles + 5 hour ferry crossing
Kitchener	— 170 miles
Hamilton	— 185 miles
Toronto	— 190 miles
London	— 205 miles
Sault Ste. Marie	— 221 miles + 5 hour ferry crossing
Sarnia	— 230 miles
Detroit	— 290 miles

* As indicated by Camper Statistics 1971 of Provincial Parks in the area.



South Baymouth

Ferry Service

Fathom Five Provincial Park

Tobermory

Bruce Trail

Lake Huron

6

Warton

Bruce Trail

Georgian Bay

1-2 Access

2. Ferry Service

The existing ferry service includes two boats—the Norisle and the Norgoma—owned by the Owen Sound Transportation Company Limited. They each have a 40-car capacity and depart every 5-6 hours, weather permitting. Due to the overloading of the ferry in peak summer periods, many potential visitors avoid the trip to Manitoulin Island.

The following table indicates the origin of users based on a 1968 survey.

Ontario	- 62.96%
Michigan	- 12.46%
Ohio	- 9.60%
Other	- 14.98%

The following table indicates the growth in ferry service use between Tobermory and Manitoulin Island in 1947 compared to 1969.

Year	Passengers	Autos	Trailers	Trucks
1947	40,518	12,744	454	24
1969	83,900	25,882	2,468	454

The proposed new 110-car ferry boats with a 4-hour turnaround will alleviate congestion problems and attract more people to Tobermory. The 4-hour waiting period between boats should allow visitors to take part in various Park functions, such as a tour boat trip or a visit to the Park Centre. A general Tobermory area Information Centre should be located in Tobermory near the ferry dock.

Many visitors in private sailing boats and cruisers—especially from the USA—are attracted to Tobermory. Navigation charts should indicate the Park boundary and other pertinent information.

3. Bruce Trail

The Bruce Trail extends 430 miles along the Niagara Escarpment from Queenston to Tobermory, providing an extensive hiking experience through Southern Ontario. A cairn marking the end of the Bruce Trail is located on the shore of Little Tub Harbour in Tobermory. The Bruce section is the most rugged and exciting part of the Trail.

The Bruce Trail may eventually link with the Finger Lakes Trail System in New York State and the Appalachian Trail, creating a 2,000-mile hiking trail from the State of Georgia to the tip of the Bruce Peninsula.

The Niagara Escarpment disappears underwater at Dunks Point, marking the end of the Escarpment as a terrestrial feature. This fact will be well-illustrated and interpreted at the proposed Park Centre, describing for visitors the many geomorphological features of the Bruce with particular emphasis on the meeting of land and water.

1.3 Site Selection

As part of this Study, a careful review of all the Land Base location options has revealed that the park area as shown on the accompanying plan combines the best opportunities to achieve the basic goals and objectives for this Park. The area included in the Land Base component of the Park is defined on the west by a line extending south from Brock Street running parallel to Highway 6; on the north by a line which is an extension of Head Street following along the road to Georgian Bay; on the east by the Water Base of the Park, and on the south by a line bisecting Dunks Peninsula and extending along Dunks Bay Road.

The Water Base component of the Park is suggested to include an area defined on the south by the tip of the Bruce Peninsula between Cape Hurd and Dunks Peninsula; on the west by a line extending from Cape Hurd to Gat Point on Cove Island; on the north by a line that extends from Gat Point to Gig Point, Cove Island to Bears Rump Island and on the east by a line extending from Bears Rump Island to Dunks Peninsula.

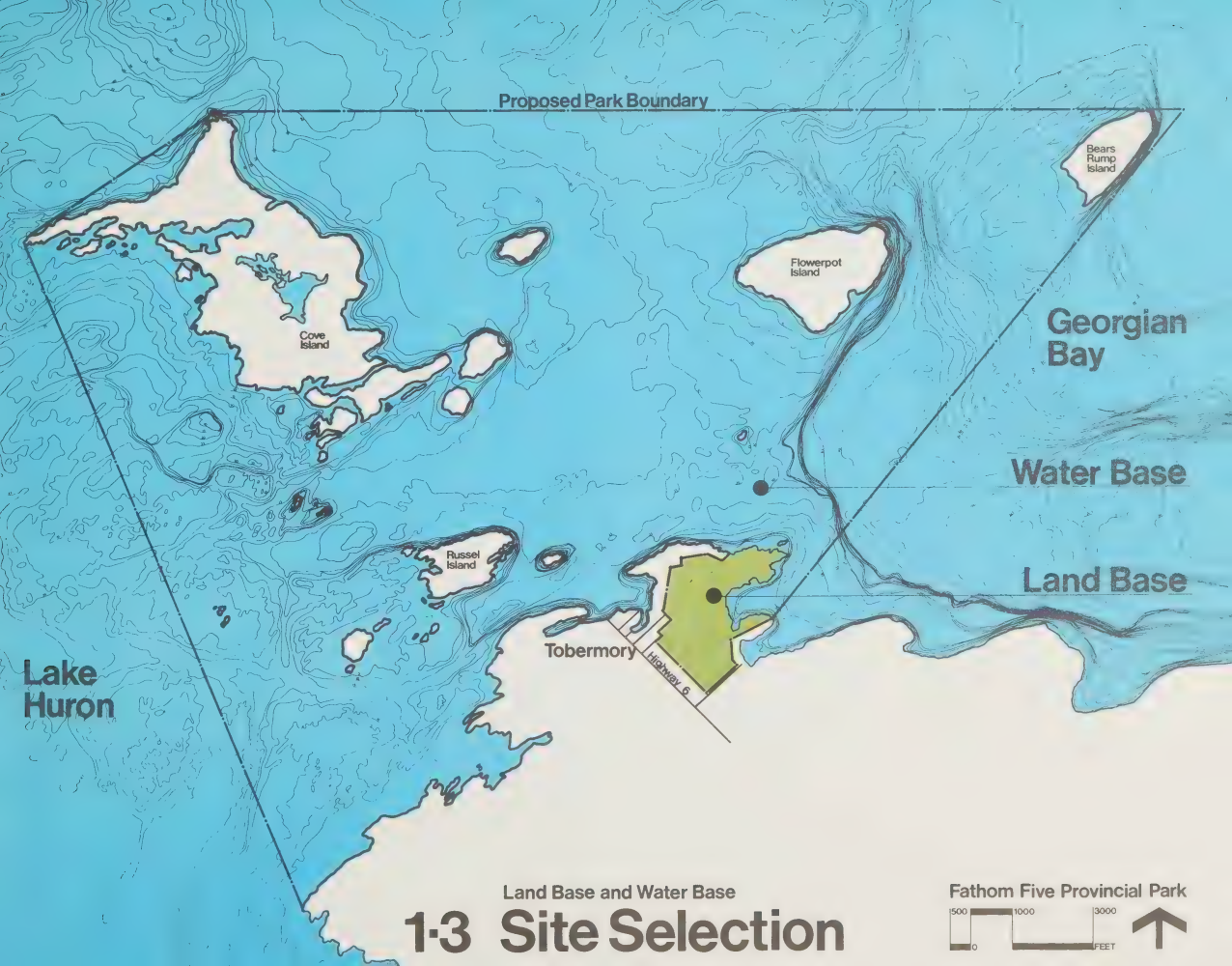
The Water Base boundary is proposed to include the area shown on the plan, relating well to the natural resources, Tobermory and the Land Base. If this area becomes a manageable unit, the Park should expand southward to include the caves near Cyprus Lake Provincial Park and northward toward Manitoulin Island.

Features of the Water Base:

- Concentration of shipwrecks in this particular area.
- Clear, unpolluted water.
- Interesting underwater geological, geomorphological and biological features.
- Interesting islands from ecological, biological, geological and historical points of view.
- Beautiful lake aspect— islands, sunrises, sunsets, waves, weather, boats (sail, yachts, tour, ferry, lakers), lighthouses, buoys, shorelines, views to land—Escarpment.

Features of the Land Base:

- Visual orientation toward islands, boat runs, night lights on buoys and lighthouses, sunrises, sunsets, and a spectacular view of the Niagara Escarpment to Cabot's Head.
- Variety and interest in features along shoreline—offshore reefs, small islands, wave action from all directions except south-west, visible differences in water depths, ice accumulation in reefs, flotsam and jetsam.
- Proximity to Tobermory and related services, facilities, and activities. Reasonable access via car, foot, bicycle and transit bus.
- Exciting architectural possibilities at Dunks Point.
- Northward underwater extension of the Niagara Escarpment starting at Dunks Point and therefore tying in closely with the terminus of the Bruce Trail.
- Rich biology (birds and fish) offshore due to the reef formations.
- The land back from the shore virtually undeveloped and capable of accommodating a greater variety of activities than is possible on any other site at the tip of the Bruce Peninsula.



Proposed Park Boundary

Bears
Rump
Island

Flowerpot
Island

Georgian
Bay

Cove
Island

Water Base

Russel
Island

Land Base

Tobermory

Highway 6

Lake
Huron

Land Base and Water Base

1-3 Site Selection

Fathom Five Provincial Park



1.4 Visitor Use

Many variables make difficult finite measurement of the numbers of visitors anticipated at Fathom Five Provincial Park. These variables include:

- Growth in recreational demand and leisure time.
- Increase in disposable incomes allowing people to satisfy their recreational needs.
- Urbanization of major centres with the consequential desire to "get away from it all" whenever possible.
- Users' demand for recreational facilities within a day's drive from urban centres, resulting in new facilities being used to their maximum shortly after completion.

Not all provincial parks are patronized to the same extent. Accessibility to the greatest number of urban dwellers, the type and range of facilities, and the special characteristics or features of a park affect the degree of utilization.

The establishment of Fathom Five Provincial Park with the proposed Park Centre, Dive Centre, accommodation facilities, day-use activities and the improved ferry service will significantly change the recreational demands and attractions in the northern Bruce Peninsula. The Park will provide a framework for absorbing increased visitor use of the area and therefore aid in maintaining the rural character of Tobermory.

This section describes the projected visitor use of the following Park facilities, giving a general picture of the potential visitor attraction to each:

1. Ferry Service
2. Park Centre
3. Accommodation Facilities
4. Diving Facilities

It is important that these facilities be flexible, with the capability of changing without destroying the basic reasons for the Park's existence.

1. Ferry Service

The **Fenco Ferry Service Study (1970)** indicated that some 84,000 people used the ferry between Tobermory and Manitoulin Island in 1969. Assuming an adequate ferry service is provided, its conservative estimate of ferry use is as follows:

Projected Annual Ferry Use (assuming new facilities)*

Year	Passengers	Autos
1969	84,000	26,000
1980	149,000	46,000
1985	178,200	55,000
1990	202,500	62,500

The proposed two new 110-car ferries** would be capable of meeting these projected demands, which are considered to be conservative. This is based on several factors: the added number of people with or without cars attracted to ride on a vessel of sea-going proportions; the removal of delays at embarkation terminals, inducing many more people to use the service, and the adjacent facilities of Fathom Five Provincial Park, providing a real attraction for vacationers.

* The Fenco Study definitive growth period was to 1980. Between 1980-90 a perspective growth was estimated at between 3% to 4% per annum.

** **Functional Planning Study 1971**, Department of Highways, Ontario.

2. Park Centre

The programs, facilities, features and physical setting of the Park Centre will be unique in the Province. As such, there is no comparable situation or facility which can be used to assess the attendance attraction of the Centre.

Visits to the Centre will be part of a total recreational experience available in Fathom Five Provincial Park, for example, approximately 12,000 people are now attracted to Flowerpot Island National Park a year. The improved ferry service will be the most significant facility in terms of attracting people of all ages and interests to the northern tip of the Bruce Peninsula.

It is conceivable that the number of annual and seasonal visits to the Park Centre would be approximately the same as the number of users of the improved ferry service, i.e., attendance of some 150,000 by the late 1970's rising to some 200,000 by 1990. To explain this figure it is estimated that 50% of the people who use the ferry will be attracted to the Park Centre;—approximately 100,000 by 1990, another 100,000 people would be attracted to the Park Centre on its own merit—totalling 200,000 visitors per year by 1990.

3. Accommodation Facilities

A review of the **Ontario Provincial Parks 1971 Statistical Report and the Visitors to Ontario Government Reception Centre 1965-67** (P. Klopchic) clearly indicates that camping facilities would have a high degree of use if provided in the Park. The potential demand for camping in the area cannot be supplied within Fathom Five Provincial Park alone without destroying the unique ecological and environmental

qualities which attracted people in the first place. The number of campsites that could be developed in the Park is not dependent on demand but on what the Park can absorb without deleterious environmental impact. Therefore, it is suggested that, approximately 175 camping units could be developed in the Park. The imbalance between supply and demand within the region will have to be provided elsewhere in the northern Bruce Peninsula by private enterprise and the provincial Government.

In terms of actual use of projected camping facilities, the 1971 data from Cyprus Lake Provincial Park, six miles to the south, provides the most reliable projection. In that park, the increase of visitors in 1971 over 1970 was 51%* with a July/August occupancy of 83%*. On a provincial average basis, this is a high occupancy but is by no means unique with a number of provincial camping sites showing a comparable period occupancy of 90+%.

The following table provides an initial extrapolation of potential campsite use with a July/August occupancy rate based on those for Cyprus Lake Provincial Park.

Campsite Use

Type of Accommodation	No. of Spaces	No. of Visitors	Camping Days
Campsites	175 Sites	18,400	42,320
Length of Stay	Average Party Size	July/August % Occupancy	
2.3	3.6	83	

* Ontario Provincial Parks 1971 Statistical Report

Of these visitors it is assumed that approximately 83% will be from Ontario, 2% will be from other provinces, and 14% from the USA. It is also suggested that approximately 52% will use the Park and camping facilities as their trip destination and 48% as a stopover.*

A trip purpose survey in 1968 of those using the Ferry** indicated 6.23% of the users were campers. On the basis of existing ferry use, approximately 4,900 ferry users were campers in 1968. Projected figures assume 9,280, 11,100 and 12,615 campers by 1980, 1985, and 1990 respectively, will be ferry users who are taking a camping trip. This suggests that even by 1990, ferry users who are also campers would only approximate 50% of all campers at Fathom Five Provincial Park.

Of the some 93.8% existing and projected ferry users who are not campers, more than 50% are vacationers, and the balance are passing through Tobermory for a variety of other reasons. Translated into numbers of people in relation to projected ferry use, these people are estimated to total some 140,000 in 1980, 167,000 in 1985 and 190,000 in 1990. This suggests that there is a potential market for an enterprising entrepreneur to develop a seasonal resort in the Tobermory area, outside Fathom Five, similar to resorts in the Lake of Bays and Parry Sound areas.

* Interpolated from Cyprus Lake data: **Ontario Provincial Parks 1971 Statistical Report.**

** **Fenco Ferry Service Study, 1970**

Other users of the Park will include interest groups such as young people travelling across Canada by bicycle, car or motorcycle and small groups hiking along the Bruce Trail. These people in many cases require simple and inexpensive accommodation similar to youth hostels.

4. Diving Facilities

The number of scuba divers attracted to the aquatic resource would be small in relation to the passive recreational tourists. Amateur and professional divers, marine historians and underwater archeologists will be attracted by the natural and cultural history of the Park. The Ontario Underwater Council represents most diving clubs and claims some 3,000+ members. It is admitted that this organization represents less than 15% of the total number of divers in Canada and that taking Ontario alone, divers probably number close to 7,000+. In addition, a considerable number of divers arrive at Tobermory from New York, Michigan and Ohio — these states being within a weekend roundtrip drive.

The actual number of divers who have been in the Tobermory area at any peak weekend during the summer is in the order of 300, but there is no definitive market data to determine future visitations.

Scuba diving is unquestionably a growing sport which will increase demand for special facilities. The high-quality natural resources for diving and snorkeling within the Park, the Park Centre, Dive Centre, Accommodation Facilities and Tobermory itself will undoubtedly make this one of the most attractive parks for scuba diving in North America.



• Cove Island Lighthouse

2. Cultural Resources

2.1 Existing Developments

Tobermory presents a picture of intense marine activity in the two natural harbours, with the ferry boats, boat service facilities, cruisers, sailboats, fishing boats, dive boats, a lighthouse, and tour boats. The relationship of shipwrecks add to the maritime character of Tobermory.

The visitor service facilities of Tobermory include a variety of stores, gas stations, dive shops, charter tour and dive boats, motels, hotels, museums, airport, restaurants and an unimproved municipal park to the south. Cyprus Lake Provincial Park, located six miles south, will provide additional accommodation for visitors.

The Tobermory area is therefore an excellent base for an underwater park in terms of the existing diver and non-diver services and facilities and is an environment rich in marine history with an active marine orientation.

2.2 History

"An old shipwreck provides a clear concentrated picture of the culture of the time when the ship went down. It is only on a ship that so many pieces of evidence are collected in such a small space — a cross-section of life that is suddenly embalmed by the sea." — Philippe Diolé

The Bruce Peninsula jutting out to divide Georgian Bay from the rest of Lake Huron has long been a major barrier to water transportation on the upper Great Lakes. A mariner rounding the tip of the Bruce, where channels become constricted among islands and hazardous shoals and where fast forming squall waves frequently arise, might well consider this the Great Lakes equivalent to "rounding the Horn".

It is here within the confines of Fathom Five Provincial Park that countless sailors have threaded their way through an uncharted maze. Here, too, rest the bones of over two dozen known vessels that foundered in storms or were dashed against the jagged shoreline.

European traffic began during the fur trading period. This era is represented by the remains of a small, presumably French, trading vessel, claimed to be LaSalle's Griffon.

Navigation between Georgian Bay and Lake Huron increased in conjunction with the clearing and development of land to the south. The timber trade gathered momentum during the 1850's. Almost every sailing vessel which passed through the channels between Manitoulin and the Bruce was laden with wood. Sailing ships dominated the trade for the first 120 years, then waned as steam-barges — the famous "lumber hookers" — and then later the iron bulk carriers appeared.

By the 1880's, whole forests had passed into Lake Huron. In-bound traffic of cereals and grains began in the 1850's as part of a shortened route from the American midwest to commercial centres of the east.

A dynamic and complex shipping enterprise evolved. The routes of coastal traffic hugged the shoreline, while more direct through traffic passed by via the shipping lanes between Manitoulin Island and the mainland. A majority of the wrecks within the park occurred during this shipping boom between 1850 and 1920.

Collin's Harbour, later Tobermory, was first known as a "harbour of refuge". By 1885, so many boats used the natural harbour of Big Tub as an anchorage during foul weather that mooring rings and the Big Tub Light were installed by 1886.



Little Tub Harbour — Early 1900's



Cove Island Lighthouse, which was built in 1855, with its impressive gargoyled rain troughs and limestone blocks, remains today as one of the finest monuments to the era of sail and steam in the entire Great Lakes Navigational System.

A settlement developed in Tobermory around a growing marine trade. The residents lumbered and fished, receiving their supplies by boat. In the pioneer days of the settlement, as in the Maritimes, a rich inbred folk culture developed over time, inextricably tied to the ships and the lakes.

Fathom Five Provincial Park is a prime location for the exploration of the history of transportation on the Upper Great Lakes. The variety and quantity of wrecks clustered within a relatively small area testify to the frequent use of this dangerous route. Crystal clear water and a bedrock bottom facilitate underwater observation. The lighthouses, folklore and the discernible maritime flavour of the port of Tobermory blend with the water, rocks and wrecks in making Fathom Five Provincial Park a historical resource of international significance.



Three-Masted Schooner
'Isabella Sands'



• Flower Pots

3. Natural Resources

3.1 Climate

"In this area, weather fronts crossing the lakes and rushing up the high land surfaces, currents and wave patterns flowing over submerged rocks and shoals conspire to create a series of channels which are among the most dangerous in the Great Lakes. Fathoms below, the glacier-carved dolomite lake bed is as broken as the dry highland surface of the peninsula, and the warm waters of Lake Huron clash with the cold, relatively sterile waters of Georgian Bay. Violent, unpredictable storms and squalls caused by this collision of warm and cold-water masses and the weather fronts above them combine with the confusion of currents to drive helpless ships onto the rocks."

Fathom Five - A Proposal – T. Lee, G. Sealey

The local climate of the northern Bruce Peninsula is mainly influenced by the vast expanses of water of Lake Huron and Georgian Bay. The climate is similar to that of an island with moderation of all seasons – warmer winters, later fall frosts, cooler summer temperatures than areas to the south such as Owen Sound.

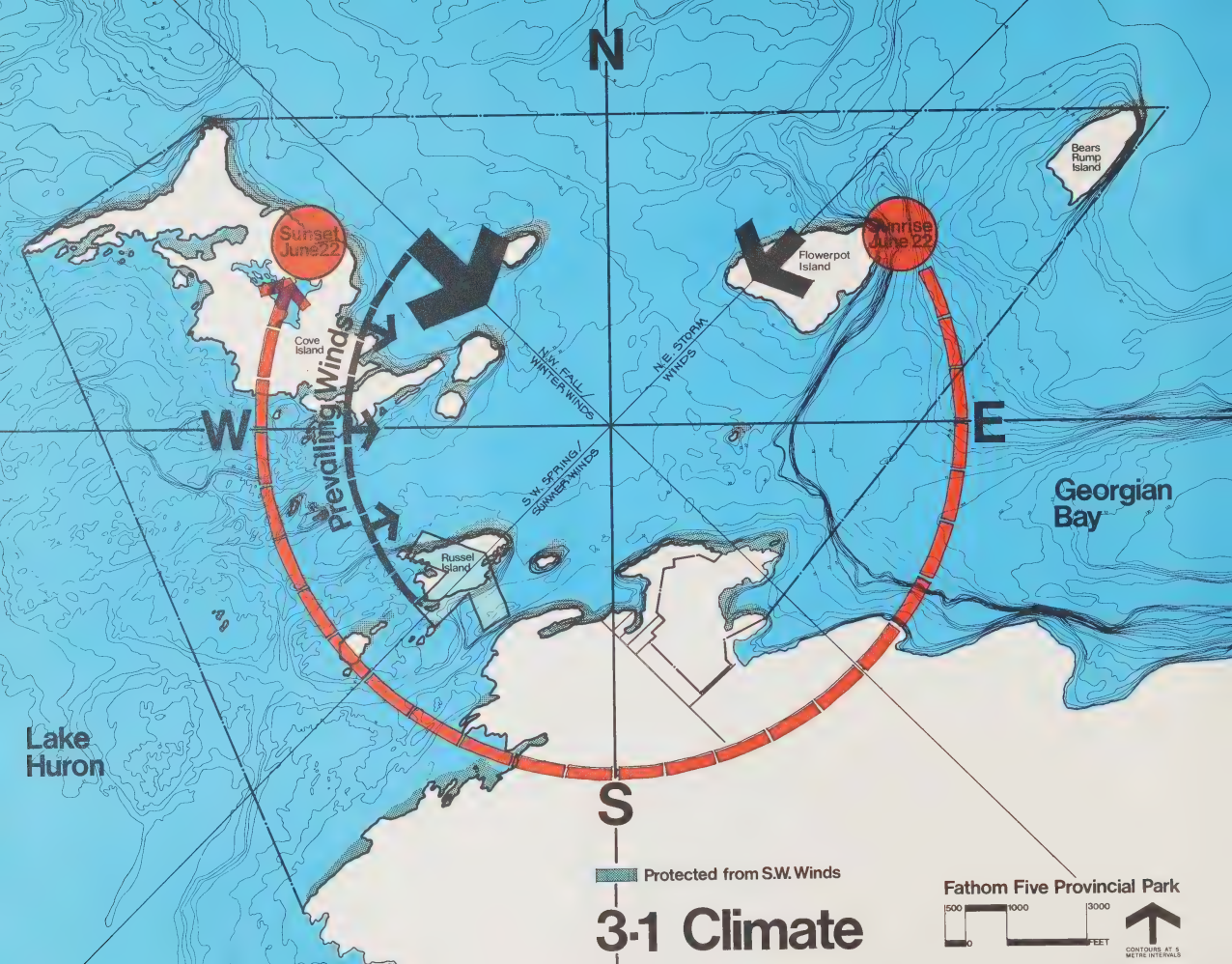
The extremely vicious storms occur during October and November, the months in which most wrecks occurred. The combination of extreme weather conditions and the ruggedness of the shoreline results in an exciting view of storms from the shore. Drifting snow and ice create picturesque natural sculptures along shorelines throughout the winter months.

The sky is a dominant visual attraction in the Park. Its phenomena include vivid displays of Northern Lights during August and September, spectacular sunrises and sunsets, the moon and an overwhelming number of stars on clear nights, and cloud formations warning of storms.

Several rare phenomena have been reported in the area such as a very dense fog during the summer months that has been named appropriately, "The Black Fog", by local fishermen. The "Black Fog" is actually an unusual thunderhead formation that extends to the water surface, encasing boats with cooled air and sometimes covering them with ice. Fishermen have also described an interesting storm phenomenon—a whirlpool formation that occurs when a strong wind shifts from one direction to another causing the wave motion to form in a circular pattern, creating a whirlpool that has been described as 30' deep and 40' across. A very rare tornado occurred near Fitzwilliam Island during the 1972 summer.

One of the major attractions to the area is the weather—the contrasting ferocity of the storms—clear, cool, starlight nights, and calm, warm, peaceful summer days. The weather conditions will affect the activities at any particular time in the Park. For example, 20% of the time the weather creates limited-use water conditions between May 1 and November 1. The Fathom Five Provincial Park staff will have to develop expertise dealing with the natural weather phenomena in the Tobermory area as other park staff must learn to understand the ecology of their terrestrial-based parks.

The climatic phenomena in the Park in various seasons should be presented in all its variations on film to allow visitors an appreciation of the diverse character of Tobermory throughout the entire year.



This chart illustrates the seasonal climatic variations for the Tobermory area:

Month	Temperature	Precipitation	Cloud Cover	Winds
Spring				
April	30-42°F	21'' average rainfall concentrated in April, May, and June	Heavy cloud cover greater than 60% of time for April, May and half of June	Prevailing winds from SW to NW with 6 - 8' developing seas
May	39-59°F			
June	47-67°F			
Summer				
July	57-73°F	Light precipitation	Light cloud cover less than 40% for half of June, July, August	Relatively calm winds, 6' sea would be unusual
August	60-73°F			
Fall				
September	52-65°F	6'' average rainfall plus possibility of 2'' snow in November	Heavy cloud cover for 60% or greater during October and November	Prevalent winds of high velocities and rapidly changing directions. Prevailing direction from NW. Severe storms from NE—Winds 60 MPH.
October	42-54°F			
November	32-45°F			
Winter				
December	23-32°F	Approx. 100'' snowfall mostly in January and February	Heavy cover 60% or more for December, January and half of February. Light cover 40% or less for half of February and March	Prevailing winds from NW quarter. Bad storms from NE Lake generally ice covered
January	15-25°F			
February	12-25°F			
March	17-29°F			
	−30°F and −40°F have been recorded	mean annual precipitation 32''; mean annual snowfall 90-96''		

3.2 Geology

Within the Park area are some of the most outstanding geological and geomorphological features in Southern Ontario. These include features of both the original parent material and landforms that have been formed since the last Ice Age.

The bedrock in St. Edmunds Township is generally Guelph dolomite formed during the middle Silurian Period of the Paleozoic Era (230-600 million years ago). The bedrock is characteristically buff-coloured and weathered along the shores into interesting patterns—heavily pitted with glacial striae and gouges. Fossils of marine animals are particularly evident in rocks along the shoreline.

A profile of the Bruce Peninsula from east to west would indicate a steep-faced jumble of massive blocks, with talus boulder slopes of the Niagara Escarpment on the Georgian Bay side, gradually sloping away from the escarpment into Lake Huron with no cliffs, as illustrated in the accompanying section. The geological conditions result in two dissimilar littoral ecosystems of Lake Huron and Georgian Bay. The

X-Section Through Bruce Peninsula



Bruce Peninsula has been denuded by glaciers and is relatively free of large glacial deposits with only scattered occurrences of granite and other erratics.

Fluctuating lake levels since glacial times have produced many interesting geological features above and below water such as raised and submerged beaches and caves, flowerpots, and possible submerged river beds, waterfalls and forests. The underwater geomorphology is characterized by large boulders, flat limestone pavements, caves, sediments of sands, silts and clays, and possible deep troughs. Glacial remnants such as erratics, roches moutonnées, tills, striae, and gougings are more apparent and striking underwater because of the lack of overburden.

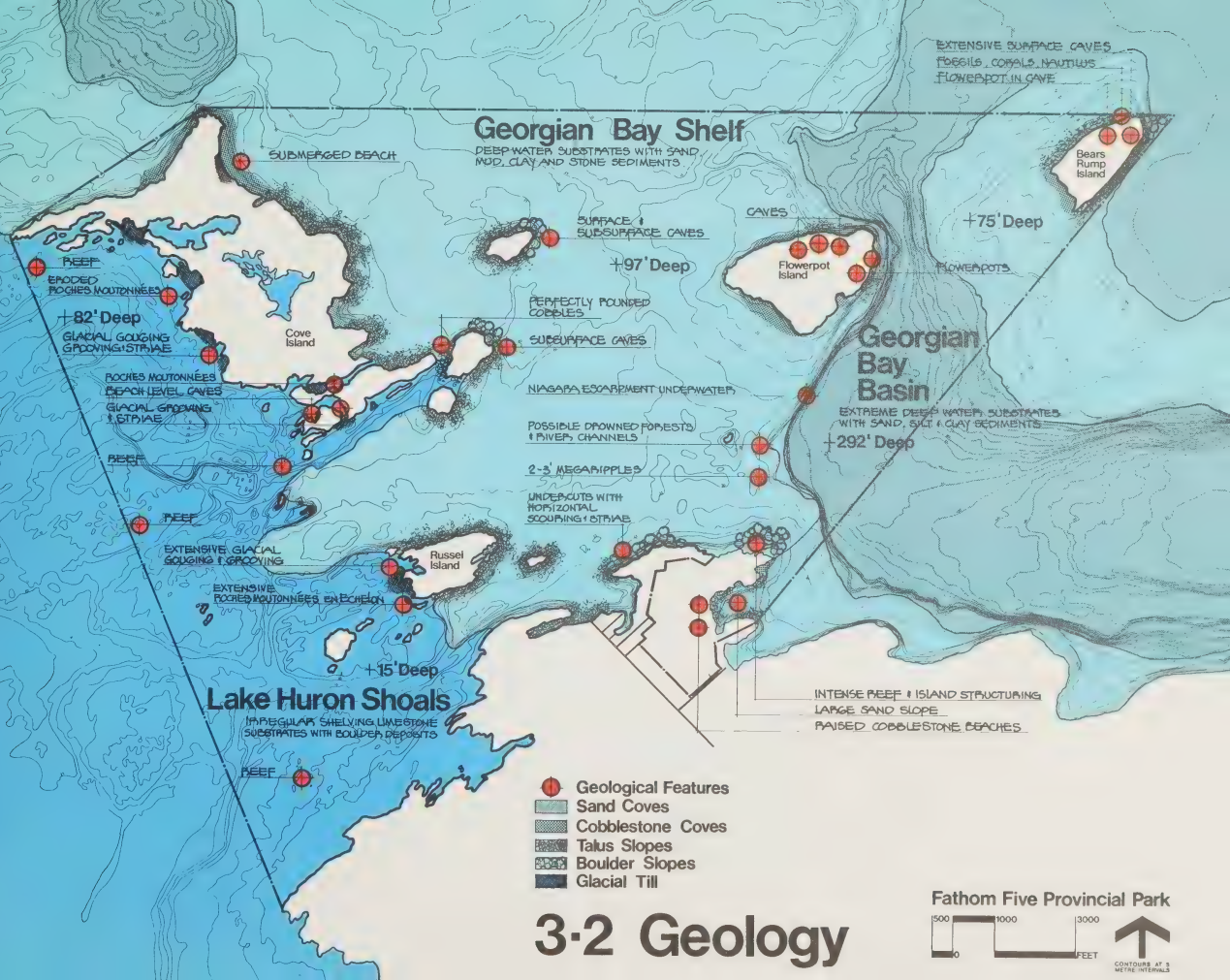
Present erosional forces such as freezing, thawing, organic action, wind, wave, and ice action are modifying the escarpment face along the Georgian Bay shoreline. Some of the eroded material is deposited, forming extensive talus boulder slopes underwater.

The gross geology and geomorphology of this area is the basic reason for the Park's existence: the different landforms of Georgian Bay and Lake Huron result in dissimilar littoral ecosystems; the Niagara Escarpment occurs above and below water; the visual attractions of islands, caves, flowerpots, roches moutonnées, and reef formations that have resulted in many shipwrecks.

The Park can be divided into three distinct geomorphological areas:

1. Lake Huron Shoals (to a maximum depth of 100').

Gradually sloping, irregular shelving limestone bedrock with



boulder deposits and an average water depth of 40'. Further from the shoreline, broken boulders and gravel deposits, reefs, shallow areas, emergent and submergent roches moutonnees, glacial gouging, grooving and striae are characteristic of this area.

Underwater Glacial Gouging



2. Georgian Bay Shelf (to a maximum depth of 100').

This is the largest geomorphological zone within the Park boundary. It includes diverse shore features—talus slopes, sand coves, cobblestone coves, and large talus boulder slopes. The bottom is covered with diverse mixtures of sands, muds and clays. Special features included in the Park are sub-surface caves, a large sand slope, submerged beaches, undercuts with glacial scouring and striae, and possibly ancient river channels and waterfalls.

3. Georgian Bay Deep Basin (from 100' - 550' deep).

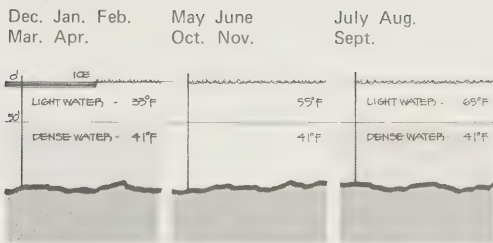
This area is found in the extreme eastern portion of the Park separated from the Georgian Bay Shelf area by the underwater extension of the Niagara Escarpment. The escarpment face underwater is not nearly as steep as its terrestrial counterpart as a result of centuries of more active erosion and sedimentation. The bottom of this area is covered with vast areas of sand, silt, and clay sediments.

3.3 Limnology

Important considerations related to limnology that will affect use of the park are water temperatures, ice formations, wave action, underwater visibility, seiches and currents.

Water temperatures in the park vary with depth, season and location. During the summer months the surface waters are warmed by the sun and a temperate zonation results—the upper layer is composed of warmer, less-dense water than the cold and dense lower layer of water. During late summer, the surface water may reach 65°F or more and below the thermocline, the temperature approximates 41°F as illustrated on the accompanying graphs. “Fairweather diving” occurs during July, August and September when water temperatures are relatively high. A maximum water temperature of 71° has been recorded in Little Dunks Bay with 60 - 65°F the usual average summer temperature. During the fall months, a well-defined vertical layering is maintained until the surface temperature has cooled and wind-caused circulation destroys the thermocline and mixes the water-producing similar temperatures throughout. During the winter, the less dense surface water approaches 32°F with a water stratification reversed from the summer condition. Lake Huron and Georgian Bay are occasionally ice-covered during the winter months with an average ice thickness up to 20 inches. The spring sun warms the surface water, increasing the temperatures and producing a less dense upper layer initiating the summer stratification period. Surface winds associated with storms have a mixing effect on water temperatures. The following graphs illustrate the typical temperature zones throughout the year.

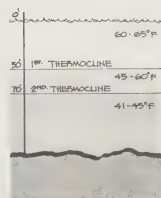
Temperature Zones

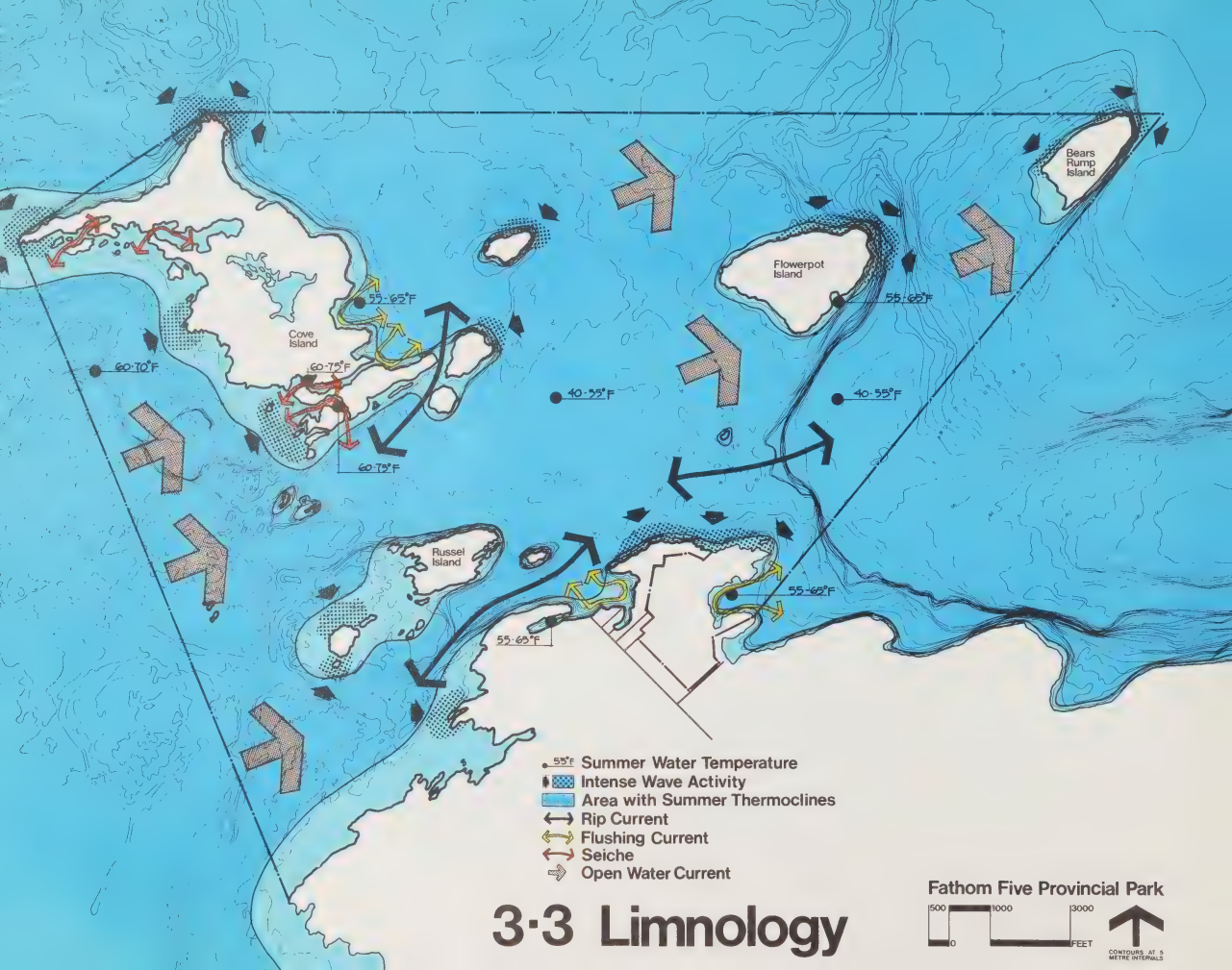


The thermocline or zone of rapid temperature change between the upper and lower levels of water coincides with intense “pitting” or honeycombing of bedrock along the Georgian Bay and Lake Huron shorelines. The accompanying graph illustrates the typical thermocline depths during August.

The varied underwater topography in the park results in waves being reflected, diffracted and refracted in irregular patterns. This factor, combined with the abrupt wind and

Thermocline Depths



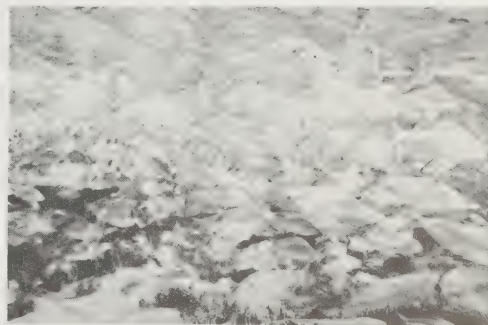


3-3 Limnology

wave changes, can result in hazardous water conditions. The shorter wave length and frequency of water in this particular area, combined with swift changes in wind direction, results in waves advancing from two directions, adding to the complexity of the water conditions. Seas from 6 - 8' are common; 10 - 15' seas develop during storms, and 25 - 30' seas have been reported by freighters in the middle of the lake.

Irregularities along the shorelines such as coves, bays, rocky points and offshore reefs affect the incoming waves and resulting current patterns. Fluctuating barometric pressures, sustained winds and wave action create intense rip currents along steep walls and channel areas in the Park. These currents, as identified on the accompanying plan, reach 3 - 3½ knots and change direction according to wind and wave motion. Several rip currents outside the Park reach 7 knots. Flushing currents move slowly in and out of bays, dependent on the wind/wave interaction for their intensity and direction. Periodic reversing seiches are noticeable in confined shallow water areas such as the Gut and Boat Passage on Cove Island. In Little Dunks Bay a unique seiche occurs periodically, circulating extremely cold water full of sediments that kills many benthic creatures*. All currents and seiches in the Park should be clearly identified for both scuba divers and boat operators.

Light penetration and underwater visibility are determined by inorganic material suspended in the water. Variations in visibility are controlled by biological activity, runoff from land, storms, high water levels, underwater activity, and circulation within the body of water. Due to the lack of sediments in suspension, the best underwater visibility in the Great Lakes south of Lake Superior occurs in the Park area.



* **Journal of Canadian Fisheries** — Vol. 27, 1970
Dr. Allen Emery, "Fish and Crayfish Mortality Due to An Internal Seiche in Georgian Bay and Lake Huron."

3.4 Biology

The Park area is composed of two distinct aquatic ecosystems — Georgian Bay and Lake Huron. Within the two ecosystems there is a marked increase in diversity (number of species), from east to west being least diverse in the deep Georgian Bay water and most diverse in the Lake Huron inshore areas. There is considerable mixing of species at the zone where Lake Huron and Georgian Bay meet.

1. Lake Huron

Lake Huron is generally shallower, murkier and warmer than Georgian Bay. Lake Huron is biologically more productive than Georgian Bay because of its warmer eutrophic water and wide littoral area. A very gradual slope extending from the shoreline on the western side of the Peninsula and Cove Island to the deeper water of Lake Huron creates two distinct biological habitats.



A. Shallow inshore habitats of Lake Huron comprise heavily sedimented, finger-shaped rock formations with intense plant and aquatic insect life—especially in the marshes at bayheads which are natural hatcheries. Territorial fish species such as smallmouth bass, rock bass, pike and pickerel—rather than schooling species as found in Georgian Bay—inhabit and protect shallow coves and bays. The inshore bays and coves are therefore of relatively high biological productivity.

B. Deeper areas of Lake Huron are inhabited by fish species such as whitefish, carp, longnose, white suckers, and shallow-water ciscoes. These species migrate diurnally into shallow bays and coves to feed. In the past, the finest lake trout spawning area in the Great Lakes occurred on these shoals. Since the decline of the lake trout, a variety of less desirable species have come into this area.

2. Georgian Bay

Georgian Bay is characteristically colder, deeper and clearer than Lake Huron, with large schooling populations of fish species in the deep offshore areas. Georgian Bay is generally termed oligotrophic, meaning relatively lower food productivity and therefore able to support fewer populations than Lake Huron. The deep water areas of Georgian Bay are biologically much less diverse than any other zones in the Park. There are basically two distinct biological habitats in Georgian Bay.

A. Inshore habitats consisting of rock cliffs, reefs, shoals, steep-sided sandy bottom bays and talus slopes. Schools of whitefish, trout and deep-water ciscoes migrate into reefs, shoals and sandy areas to spawn in the spring and fall.

SHALLOW WARM DAY MARSH
END SPP. TAYLOR, WINDY
AQUATIC INSECTS, CANN MIGRATIONS

SANDY SEDIMENTED DAY - HEAVY
VEGETATION GROWTH
END SPP. ROCK BASS, MUSKEL, SHINERS
DACE, CATFISH, SMALL BROWN BULLHEADS
MINNOW, UNVIB LIFE IN SEDIMENTS

NOCTURNAL MIGRATIONS
SPP. PERCH, SMELT, TROUT PERCH

WRECK PROVIDES
ARTIFICIAL REEF
END SPP. ROCK BASS

Cove Island

SHALLOW SANDY BAYS - TALLS
ROCK, SHORES - LITTLE VEGETATION
END SPP. SCULPIN, CATFISH, GRAYFISH
NOCT. MIGRATIONS, PERCH, ROCK BASS, SUCKERS, POUND WHITEFISH

CHANNEL
SPP. SCHOOLS OF ALEWIFE MIGRATE

SHALLOW BAY - ROCK, SAND,
MARSH, DAYHEAD
END SPP. ROCK BASS, PIKE,
SHINERS, CATFISH, GRAYFISH
AQUATIC INSECTS
NOCT. MIGRATIONS, CANN, SUCKERS

PERMANENTLY DEEP WATER SPP.
DEEP WATER COOSED LING, CUDROT, TROUT SALMON
150 - 350' DEEP

NIAGARA ESCARPMENT SEPARATES
DEEP WATER SPP. & SHELF SPP.
DEEP WATER FISH MIGRATE ALONG
BASE OF ESCARPMENT

REEFS, TALLS BLOCK SLOPES
CANN ALEWIFE, SHALLOW WATER COOSED,
SHINY CATFISH, SCULPIN, GRAYFISH
(FREQUENT IN LATE AFTERNOON)

SANDY DAY, TALLS SLOPES
END SPP. SCULPIN, CATFISH, STICKLEBACK
NOCT. MIGRATIONS, PERCH, ROCK BASS, ALEWIFE
SMELT, SUCKERS, TROUT PERCH, POUND WHITEFISH

ROCK CRIB
SPP. BASS, PERCH

ROCK SEDIMENT BOTTOM,
VEGETATION, ELODIA, VALISNERIA, CHARA, BITELLA
END SPP. SCULPIN, CATFISH, STICKLEBACK
NOCT. MIGRATIONS, SHAKE, BASS, ALEWIFE, SMELT, PERCH, TROUT PERCH

SANDY SEDIMENT BOTTOM, TALLS ROCK SLOPES
END SPP. SCULPIN, CATFISH, GRAYFISH, STICKLEBACK
NOCT. MIGRATIONS, SHAKE, ALEWIFE, ROCK BASS, SMELT, SUCKERS

FLOATING & SUBMERGED
VEGETATION AT DAYHEAD
ELODIA, LILY, WATER-
WEED, WRECK PROVIDES
ARTIFICIAL REEF
END SPP. BASS, SHAKE

Lake Huron Shallow, Murky, Warm

TEMPERATURE: SPP. OF FISH INHABIT COVES & SHALLOW
BAYS

SHALLOW, MUDDY, WARM DAY WITH CONTINUOUS
FLUSHING SEICHE ACTIONS
SPP. SUCKERS, DACE, MUSKEL ON BOTTOM
(PERCH, MUSKEL, SHINERS COULD LIVE ON SPP.)

WETMORE:
ARTIFICIAL REEF
SMALL LACON TONGS, LONG
NOSE SUCKERS, ROCK
SPP., BROWN WHITEFISH,
SHALLOW WATER COOSED,
CATFISH

ROCKIES MOUNTAINS
SPP. CANN & SUCKERS MIGRATE
IN LATE AFTERNOON

HEAVILY SEDIMENTED MARSH
(PROFUSION EMERGENT AND
SUBMERGENT VEGETATION)
END SPP. ROCK BASS, SHALLOW
BASS, SHINERS, DACE, CATFISH
SCULPIN, BROWN BULLHEADS,
AQUATIC INSECTS

DIURNAL MIGRATIONS
SPP. CANN, LONG NOSE, WHITE SUCKERS
SHALLOW WATER COOSED

Georgian Bay Deep, Clear, Cold

LARGE SCHOOLING POPULATIONS OF
FISH IN DEEP, OFFSHORE AREAS

SPRING & FALL MIGRATIONS
END SPP. SWEET WHITEFISH,
DEEP WATER COOSED,
TROUT

Flowerpot Island

Bears Rump Island

↔ Fish Migrations
● Special Biological Areas
● Endemic Fish Species
● Noct. Nocturnal

Fathom Five Provincial Park



3.4 Biology



also be curtailed within the Park to maintain the relatively high water quality. Water level fluctuations of the Great Lakes affect natural life cycles of organisms in shallow marshy areas, especially on the west side of Cove Island and the Peninsula.

Throughout the year, species such as perch, smelt, and trout perch migrate nocturnally into sandy bays to feed.

B. Permanent deep-water fish species include whitefish, trout, deep-water ciscoe, ling and sculpins. These are generally large schooling fish species found at depths from 150 - 550' deep.

Development controls on the islands within the Park are necessary to protect the more fragile biological habitats. Commercial fishing and dumping of wastes from boats should



• Rock Bass

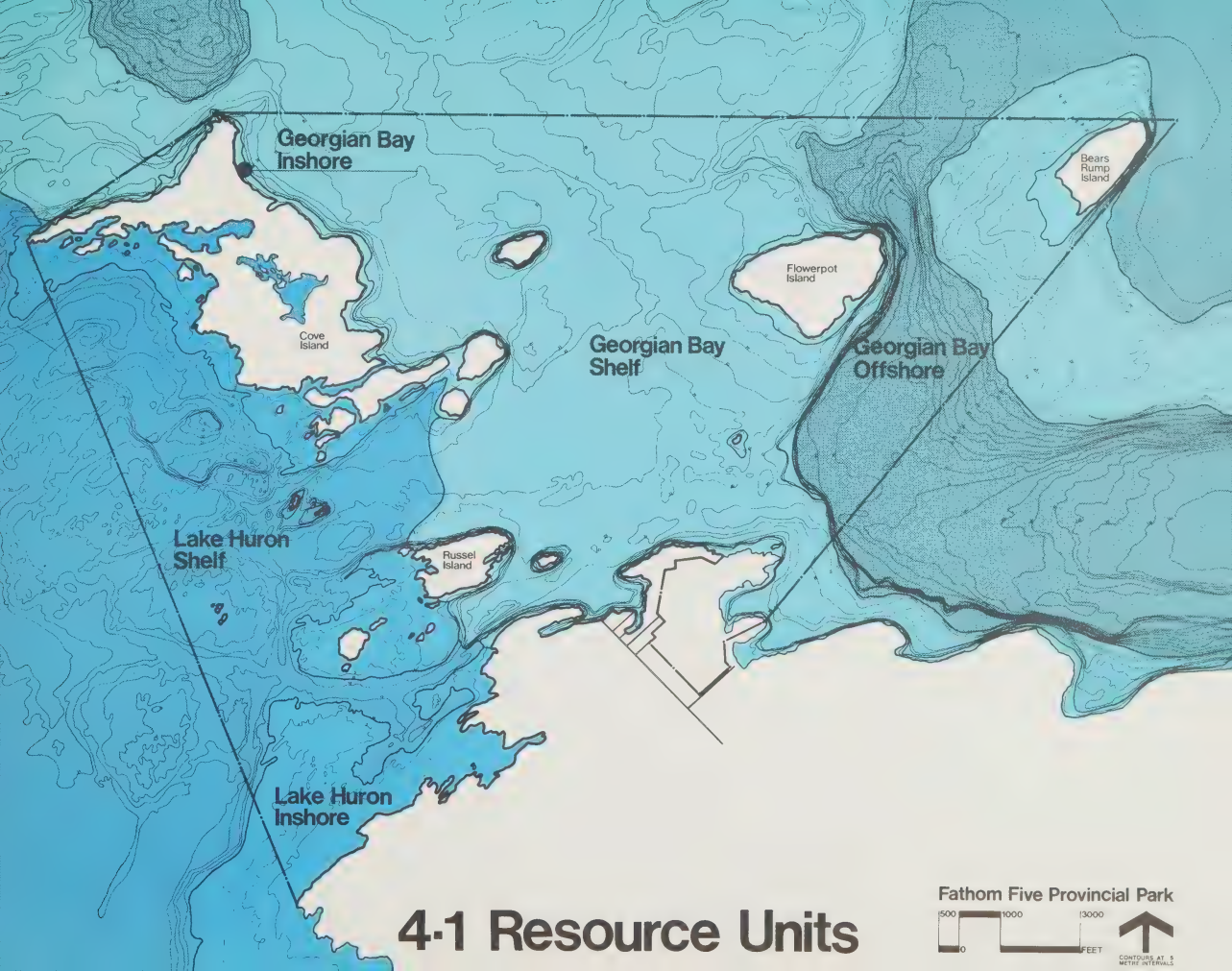
4. Resource Evaluation

4.1 Resource Units

An analysis of the natural resources reveals the following five identifiable Resource Units within Fathom Five Provincial Park:

1. Lake Huron Shelf
2. Lake Huron Inshore
3. Georgian Bay Inshore
4. Georgian Bay Shelf
5. Georgian Bay Offshore

The design or master plan of an aquatic park cannot be “laid out” on water like its terrestrial counterpart. Accordingly, the master plan for Fathom Five Provincial Park involves a thorough understanding of the water, its capabilities, its sensitivity, its ecology and the recreational demands to be placed upon it. Based on this, the important considerations for each unit in terms of administration and recreational potential is illustrated and described.



**Georgian Bay
Inshore**

Cove
Island

**Georgian Bay
Shelf**

Flowerpot
Island

**Georgian Bay
Offshore**

Bears
Rump
Island

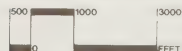
**Lake Huron
Shelf**

Russel
Island

**Lake Huron
Inshore**

4-1 Resource Units

Fathom Five Provincial Park



1. Lake Huron Shelf

Characteristics

Climate

- Exposed to all winds—especially the prevailing northwesterlies and southwesterlies.

Geology

- Gradually sloping and shelving limestone bedrock partially covered with broken boulders sand, silt, and gravel deposits. Irregular underwater topography with reef formations. Water is generally more than 40' deep.

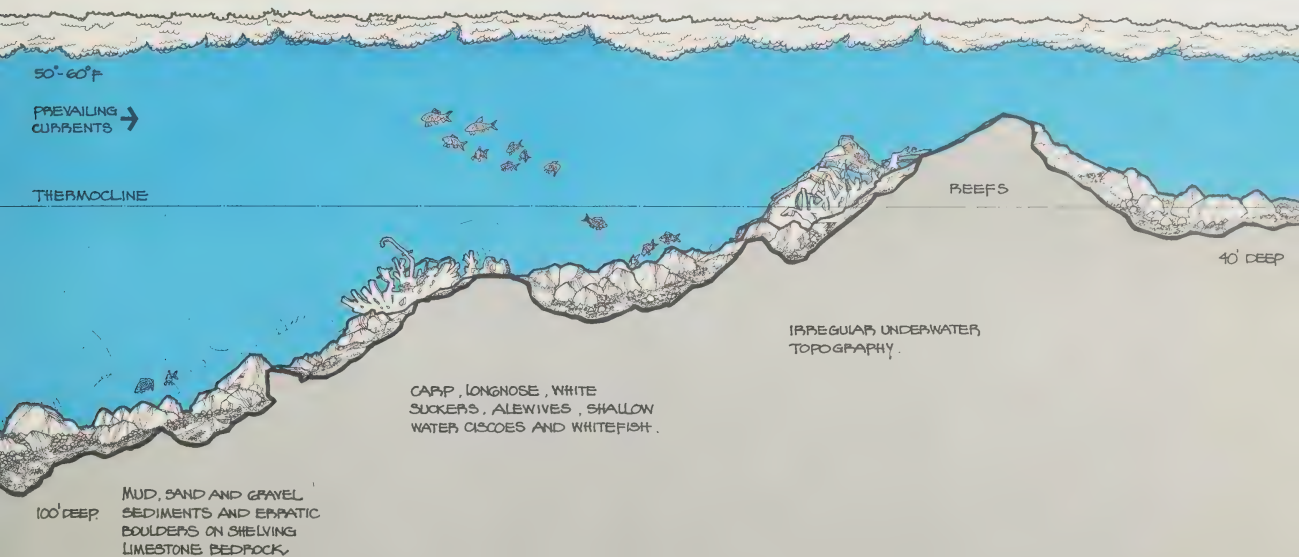
Limnology

- Relatively warm and murky water. Average summer temperatures are 50 - 60°F. with a thermocline present in deep water. Extreme exposure results in turbulent and unpredictable water conditions. Prevailing currents from the west.

Biology

- Carp, longnose, white suckers, round whitefish, alewives and shallow-water ciscoes migrate periodically into bays and coves to feed.

EXPOSED TO WINDS AND WAVES
FROM ALL DIRECTIONS.



2. Lake Huron Inshore

Characteristics

Climate

- Exposed to the prevailing northwesterly and southwesterly winds and protected from the occasional northeasterly and easterly winds. Effects of wind and wave action are highly visible on the shore. Exposure also causes accumulation of debris and driftwood on the shore. The great storm of 1913 is said to have plugged the Boat Passage with debris.

Geology

- Gently sloping and shelving limestone bedrock covered with scattered boulder deposits. Irregular underwater topography with the bedrock and roches moutonnées gouged and grooved by glacial action. Water depth is generally less than 40'.

Limnology

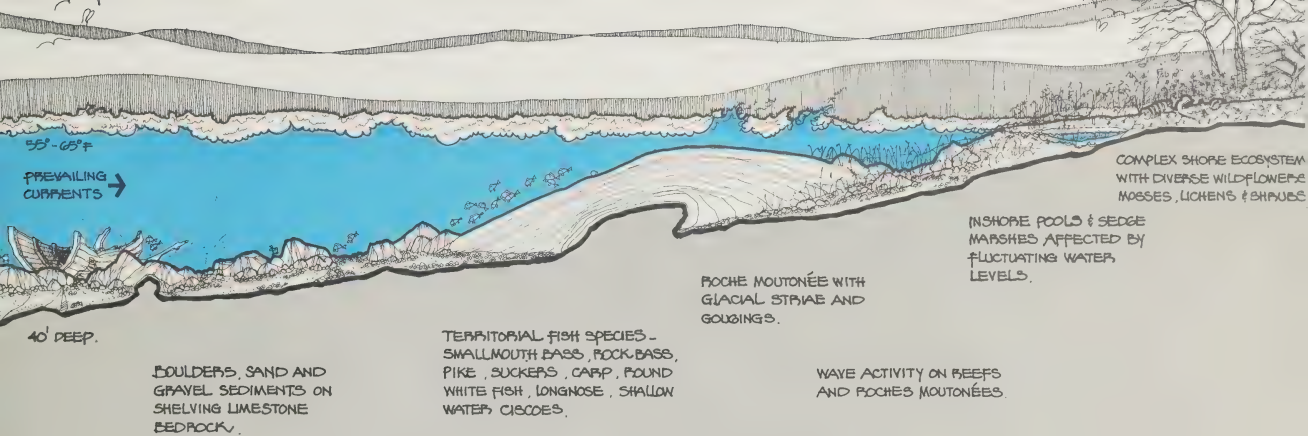
- The average surface summer temperature ranges from 60 - 70°F. Intense wave activity occurs on reefs, roches moutonnées and boulders along the shore. Easily observable local seiches occur in The Gut and Boat Passage on Cove Island. Prevailing currents are from the west.

Biology

- Mostly territorial fish species such as small-mouth bass, rock bass, pike, pickerel and migrant scavengers such as carp and suckers inhabit inshore areas. This is potentially an area of high biological productivity with inshore pools and sedge marshes fed by fluctuating water levels and seiches creating a diversified biological condition.



Lake Huron Inshore



3. Georgian Bay Inshore

Characteristics

Climate

- The inshore area is exposed to northeasterly and southeasterly winds and is protected from the prevailing northwesterly and southwesterly winds.

Geology

- The shoreline is composed of a steep-faced jumble of massive limestone blocks and cobblestone beaches, caves, flowerpots and fossils. Underwater features include caves, ledges overhanging cliffs, talus boulder slopes and sandy bottom bays. Above the shoreline on the islands are flowerpots, caves and fossils. The water depth ranges from 0 to 40'.

Limnology

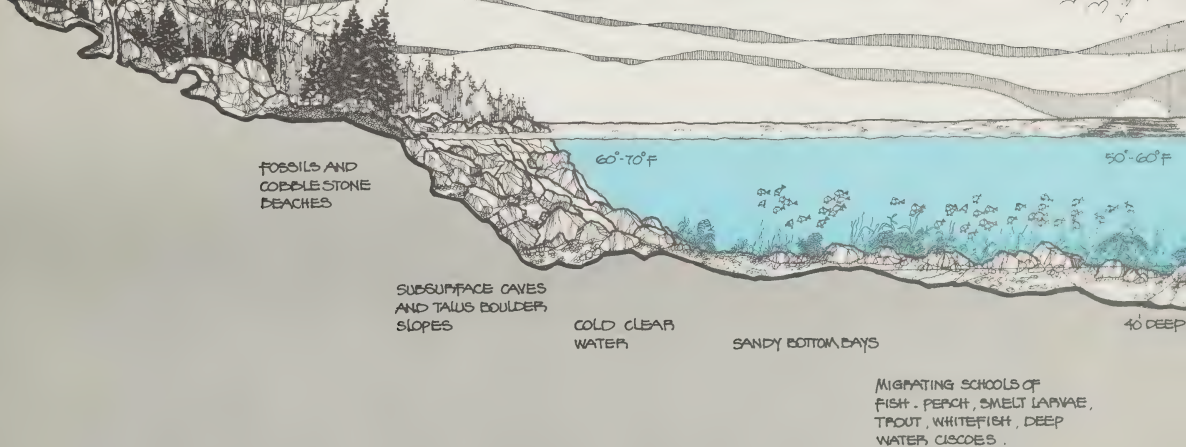
- Good underwater visibility. The summer average surface water temperature is 50-60° with temperatures reaching 60-70° in protected bays. Thermocline occurs at 40' with intense pitting of bedrock at that depth. Flushing currents occur in most bays.

Biology

- Species of fish such as perch, smelt, trout, trout perch and suckers migrate inshore nocturnally to feed. Schooling fish species (pelagic species) such as whitefish, deep and shallow-water ciscoes and trout migrate inshore to spawn in the spring and fall.



Georgian Bay Inshore



4. Georgian Bay Shelf

Characteristics

Climate

- Exposed to winds and waves from all directions. Limited protection and greatly affected by rapid weather changes.

Geology

- Relatively flat underwater topography with diverse mixtures of sand, gravel, clays and silts. Water depth ranges between 40' and 150'. This zone is the approximate area exposed during the land bridge phase of post-glacial times.

Limnology

- Average summer surface temperature is 50-60°F. Summer thermoclines occur at 40' and 70'. Prevailing currents are from the west. Rip currents occur near Middle Island, the Otter Islands, and Doctor Island. The extreme exposure results in turbulent and unpredictable water conditions.

Biology

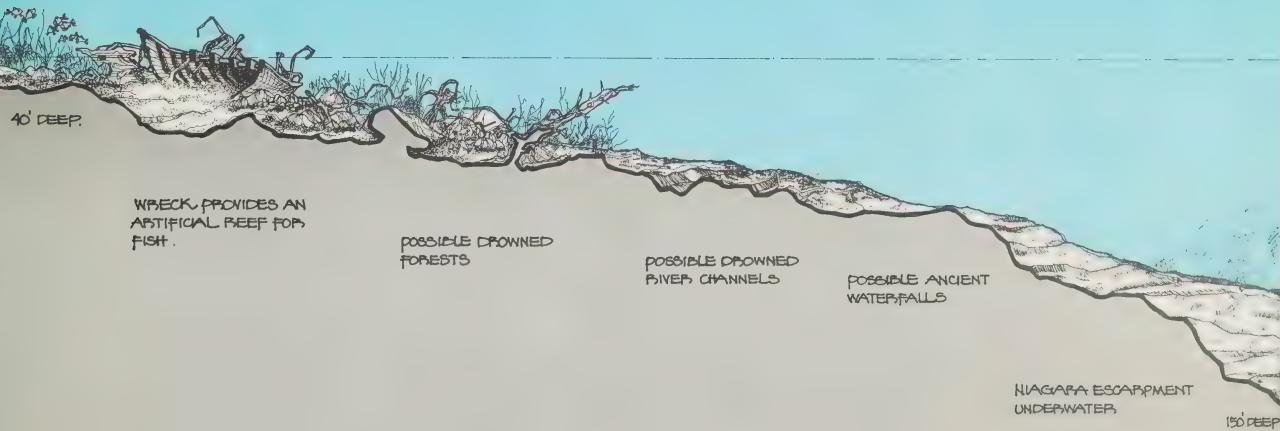
- A mixture of Georgian Bay Inshore species such as perch, smelt, trout perch and Georgian Bay Offshore species such as whitefish, trout, deep-water ciscoes are located in the Georgian Bay Shelf. A greater diversity of species is found here than in Georgian Bay Offshore.

EXPOSED TO WINDS & WAVES FROM ALL DIRECTIONS

45°-55° F

PREVAILING
CURRENTS →

THERMOCINES AT 40' & 70'



WRECK PROVIDES AN
ARTIFICIAL REEF FOR
FISH.

POSSIBLE DROWNED
FORESTS

POSSIBLE DROWNED
RIVER CHANNELS

POSSIBLE ANCIENT
WATERFALLS

NIAGARA ESCARPMENT
UNDERWATER

150' DEEP

5. Georgian Bay Offshore

Characteristics

Climate

- Exposed to winds and waves from all directions.

Geology

- Silt or clay sediments uniformly cover broad areas over bedrock. Underwater topography is relatively flat with depths ranging from 150' - 500'. The Niagara Escarpment underwater extension is the dividing line between the Georgian Bay Offshore and Georgian Bay Shelf resource units.

Limnology

- Average summer water surface temperature is 40-55°F. Water is deeper, and colder, than any other unit in Georgian Bay.

Biology

- Large schools of deep-water fish species such as deep-water ciscoe, ling (burbot), sculpins, smelt and whitefish migrate inshore to spawn. Least biological diversity in this unit.

EXPOSED TO WINDS AND WAVES
FROM ALL DIRECTIONS

40°-55°F

THERMOCINES AT 40' & 70'

150' DEEP.

SCHOOLS OF FISH
MIGRATE ALONG
BASE OF THE ESCARPMENT

BROAD AREAS OF
SILT AND CLAY SEDIMENTS

LARGE SCHOOLS OF DEEP
WATER FISH SPECIES. DEEP WATER
CISCOES, LING, WHITEFISH, TROUT.

550' DEEP

5. Georgian Bay Offshore

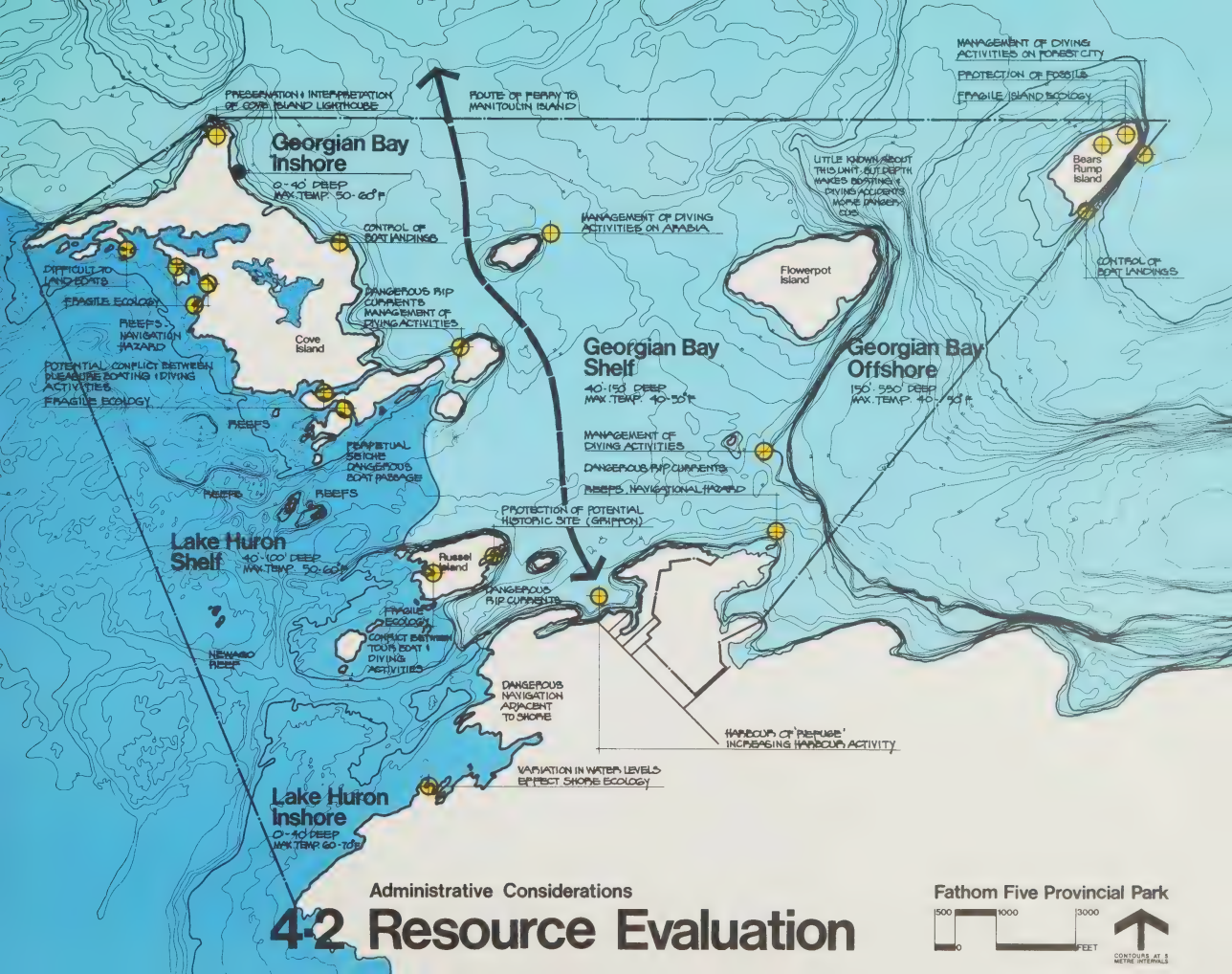
4.2 Resource Evaluation

Establishment and explanation of the Resource Units in terms of their own particular characteristic is the basis for management of the Park as well as establishing the various recreational activities that are possible in each unit. These considerations are described in relationship to each of the following Resource Units:

1. Lake Huron Shelf
2. Lake Huron Inshore
3. Georgian Bay Inshore
4. Georgian Bay Shelf
5. Georgian Bay Offshore

Crayfish





Administrative Considerations

4.2 Resource Evaluation

Fathom Five Provincial Park



CONTOURS AT 5 METRE INTERVALS

1. Lake Huron Shelf

Administrative Considerations.

- Exposure to winds and waves creates the most turbulent and unpredictable water conditions in the Park. Therefore, boating in these waters requires considerable navigational experience, a substantial craft and knowledge of weather conditions.
- Reefs, shoals and submerged rocks also provide numerous navigational hazards.

Recreation Potential

A. Non-Diving Activities

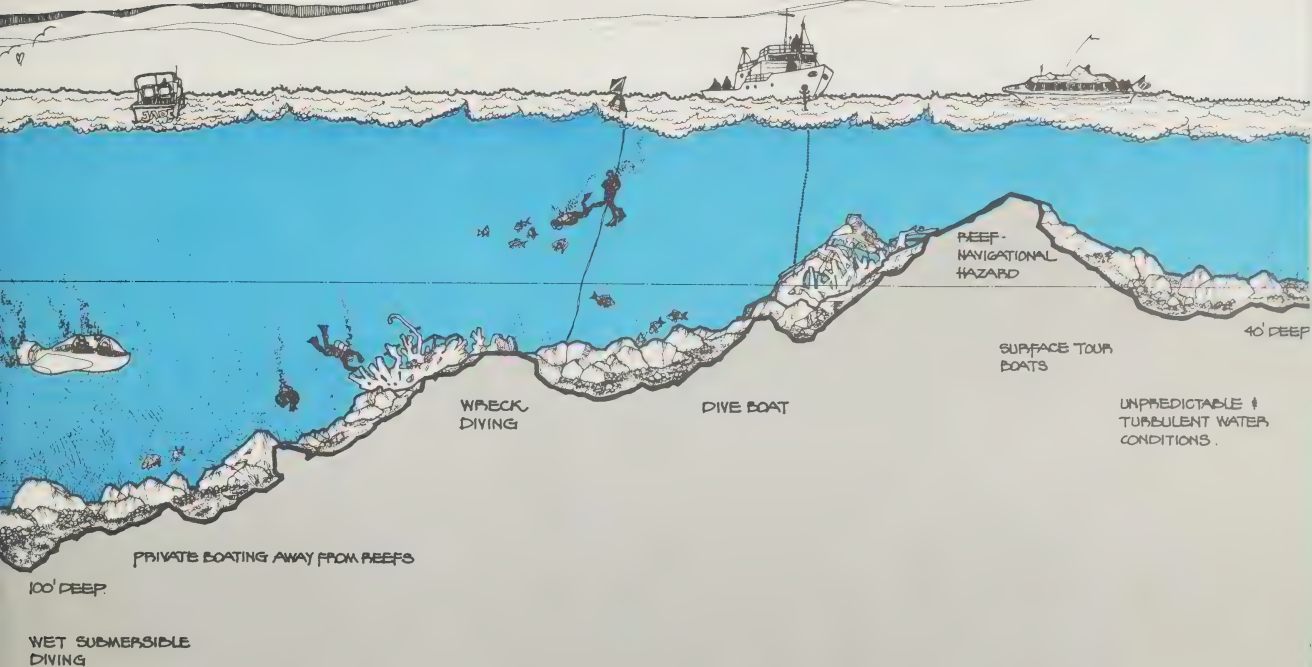
- Surface boat tours to appreciate the wind, sun, waves, stars, moon, shoreline and islands.
- Submersible boat tours to view the barren geological features, reef structures, and other geomorphological characteristics of Lake Huron to non-divers.

B. Diving Activities

- Organized exploration for additional wrecks in the Park.
- Wet submersible diving is possible by experienced divers.
- Experienced scuba diving operations are required in this unit because of exposure and hazardous navigational conditions.
- Diving may occur on the following known wrecks in this unit:

Newaygo — Steamer — 30' deep.

James C. King — Schooner — 37 - 92' deep.



2. Lake Huron Inshore

Administrative Considerations

- Shallow water, numerous reefs, roches moutonnées, strong currents and unpredictable waves result in hazardous navigation. Therefore a definite knowledge of the water is required by boat operators.
- It is difficult to land small boats on this shore because of shallow and unpredictable water conditions.
- The gradual underwater slope from the shore in combination with slight variations in water levels results in significant effects on the shore ecosystems and subsequent location of the Park boundary at high water level.
- Insensitive development on the islands would effect the fragile shore environments and destroy the natural beauty.
- The varied underwater features in this unit create some of the most intensively used diving areas in the Park.
- Because of good visibility to underwater areas from the surface tour boats there exists potential conflicts between scuba diving and tour boating near wrecks.
- It will be necessary to control the numbers of visitors to fragile biological sites.
- Accumulation of debris and driftwood on the shore will require controls to prevent beachcombing removal.
- Management of diving activity from cottages with access to the water.

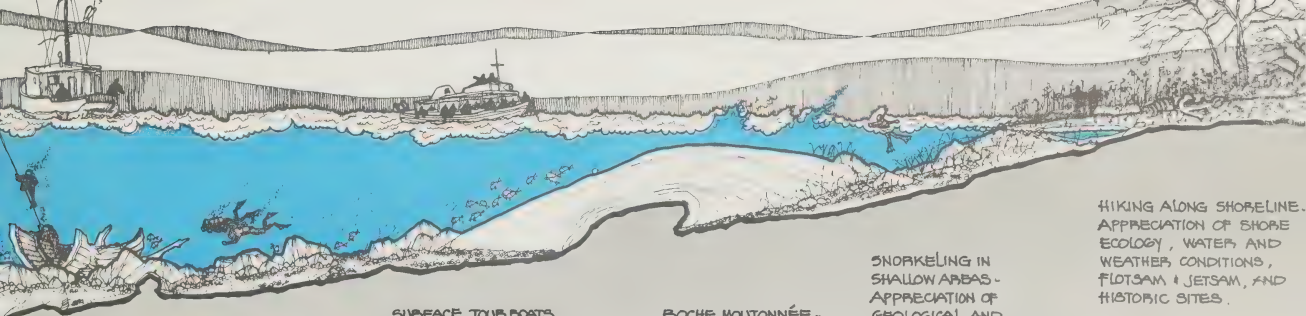
Recreation Potential

A. Non-Diving Activities

- Because of shallowness, there is good exposure of wrecks, biological features and geological features from surface tour boats (not necessarily only from glass bottom boats).
- Appreciation of Lake Huron's varied and changeable shoreline features such as inshore pools, sedge marshes, rocks, boulders, driftwood, roches moutonnées and plant ecosystems from tour boats.
- Possible use of remote closed-circuit television to show an interesting underwater site to viewers on surface tour boats.

B. Diving Activities

- In this unit there is a concentration of the interesting features for underwater appreciation—shipwrecks, geology and biology.
- Shallow and relatively warm water make this zone attractive for both experienced and novice divers.
- This is the most attractive snorkeling area in the Park.
- Diving can occur on the following known shipwrecks in this unit:
W.L. Wetmore — Steamer — 10-25' deep
John Walters — Schooner — 10' deep
China — Schooner — 10' deep



40' DEEP

DIVE BOAT,
WRECK, DIVING

DIVING TO EXPLORE
INTERESTING GEOLOGICAL
& BIOLOGICAL FEATURES.

SURFACE TOUR BOATS
APPRECIATION OF SHORE-
LINE & UNDERWATER
FEATURES.

POCHE MOUTONNÉE -
HAZARDOUS
NAVIGATION

SNORKELING IN
SHALLOW AREAS -
APPRECIATION OF
GEOLOGICAL AND
BIOLOGICAL FEATURES

HIKING ALONG SHORELINE.
APPRECIATION OF SHORE
ECOLOGY, WATER AND
WEATHER CONDITIONS,
FLOTSAM & JETSAM, AND
HISTORIC SITES.

3. Georgian Bay Inshore

Administrative Considerations

- Boating and general concentration of activities in Big and Little Tub Harbour will increase as facilities become developed.
- There are potential circulation and use conflicts near Tobermory such as use of the wreck Sweepstakes.
- Easy access (deep water) and less exposure to rough weather requires control of boat landings on the Georgian Bay Inshore.
- Largest potential source of water pollution from Tobermory and adjacent cottage areas.
- Protection of Griffon Cove to determine historic authenticity of The Griffon and Neechee.
- Determine public access to Cove Island Lighthouse and Flowerpot Island Lighthouse.

Recreation Potential

A. Non-Diving Activities

- Surface boat tours to Flowerpot Island National Park, including such activities as hiking, picnicking, visiting the lighthouse and photography.
- Possible provision of cruiser and sailboat docking facilities at specific sites on islands, with associated day-use activities such as picnicking, hiking and swimming.
- Surface boat tours around islands to view flowerpots, caves, birds, vegetation and spectacular cliffs.

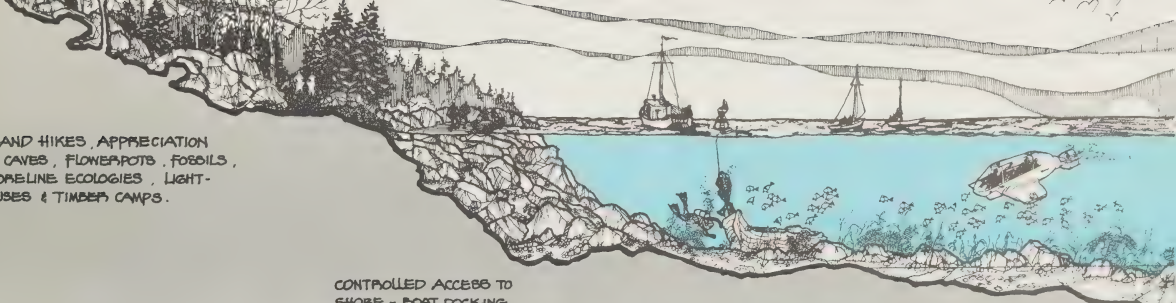
- The use of glass bottom boats to view wrecks and fish attracted by artificial lighting at night.
- Submersible boat tours viewing shore features such as caves, ledges, sheer cliffs, boulders, talus slopes and reefs.
- The use of closed-circuit television to view an interesting underwater site from a surface tour boat.

B. Diving Activities

- Underwater appreciation of caves, biology, boulders, ledges and talus slopes.
- Diving in this unit by more experienced divers than Lake Huron Inshore area because of colder water and greater amount of boating activities.
- Canada's first underwater habitat, Sublimnos, a project of the James Allister MacInnis Foundation, is located in 33' of water in Little Dunks Bay.
- Wet submersible diving is possible here by experienced divers.

- Diving on the following known wrecks in this unit:

Charles P. Minch	— Schooner	— 20' deep
City of Grand Rapids	— Steamer	— 10' deep
Sweepstakes	— Schooner	— 20' deep
Alice G.	— Steam Tug	— 10-20' deep
Robert K.	— Steam Tug	— 10-20' deep
John & Alex	— Steam Tug	— 10' deep



ISLAND HIKES, APPRECIATION
OF CAVES, FLOWERPOTS, FOSSILS,
SHORELINE ECOLOGIES, LIGHT-
HOUSES & TIMBER CAMPS.

CONTROLLED ACCESS TO
SHORE - BOAT DOCKING
FOR ISLAND TOURS.

WRECK DIVING

CALMER WATER FOR
PRIVATE BOATING

WET SUBMERSIBLE
DIVING

40' DEEP

4. Georgian Bay Shelf

Administrative Considerations

- Boats must be designed to withstand potentially rough seas that occur in this unit.
- Potential boat circulation conflicts may occur amongst the ferry, tour boats, dive boats, private crafts, submersibles, fishing boats and lake freighters.
- Changeable water and visibility conditions can result in hazardous boating.
- Potential conflict between commercial fishing and preservation of shipwrecks.
- Because of extreme depth, locating the wreck is sometimes difficult and damage may occur during anchorage—a permanent marker system will be necessary.

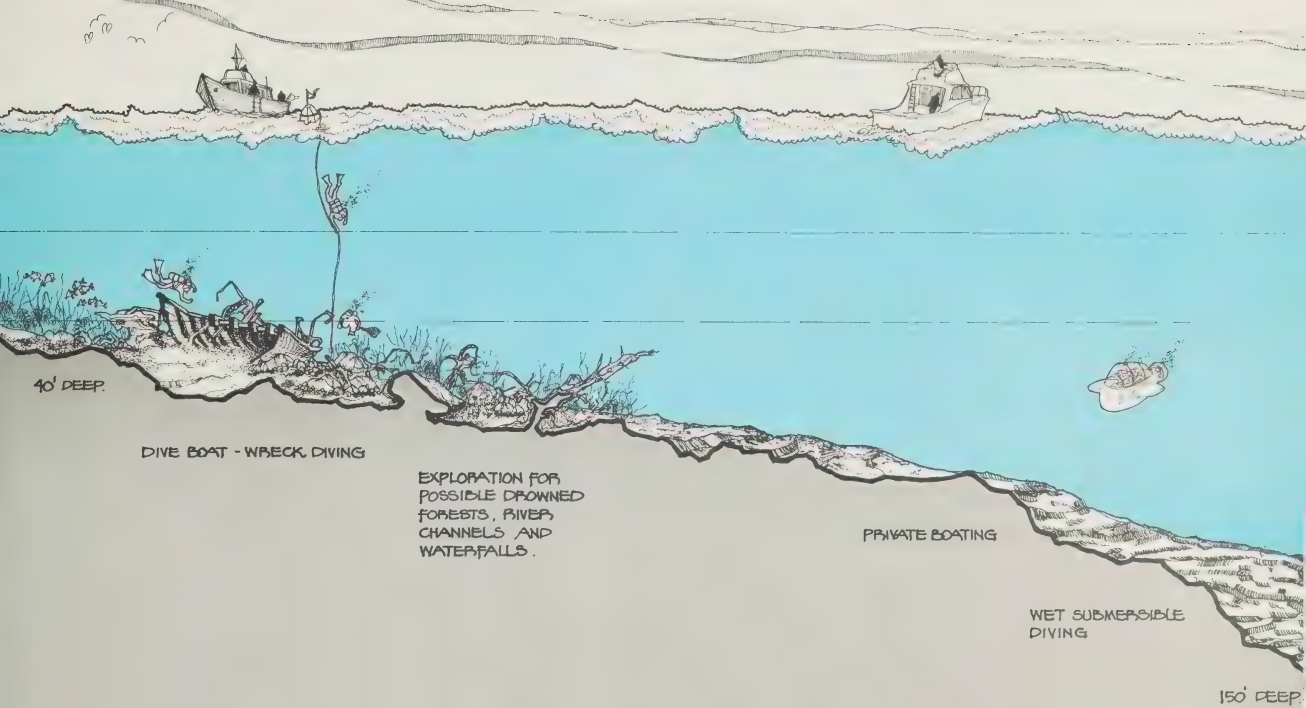
Recreation Potential

A. Non-Diving Activities

- Surface boat tours to appreciate size of Park, location of islands, water and weather conditions, night skies, sunrises and sunsets.
- Submersible boat tours to view the clear water, shipwrecks, possible ancient river beds and drowned forests, and other significant features of the area.
- Closed-circuit television to view special underwater features while on the surface.

B. Diving Activities

- While diving accidents occur throughout the depth range, risk increases with depth. 90' is considered the maximum depth for recreational diving—therefore diving in this unit by well-qualified divers only.
- Use of wet submersibles by experienced divers only.
- Diving in this unit may occur on the possible underwater river channels, waterfalls and drowned forests at a depth from 100' to 150'.
- Diving may also occur on the following known shipwrecks in this unit:
Forest City — Steamer — 60 - 150' deep
Arabia — Barque — 110' deep
Mary L. Breck — Schooner — 56 - 95' deep



40' DEEP.

DIVE BOAT - WRECK DIVING

EXPLORATION FOR
POSSIBLE DROWNED
FORESTS, RIVER
CHANNELS AND
WATERFALLS.

PRIVATE BOATING

WET SUBMERSIBLE
DIVING

150' DEEP.

5. Georgian Bay Offshore

Management Considerations

- Boats must be designed to withstand potentially rough seas that occur in this unit.
- Because of extreme depths, boating and diving accidents are more serious in this unit.
- Possible conflicts with commercial fishing in this unit.
- Because of depth and lack of research, there is very little known of this unit.

Recreation Potential

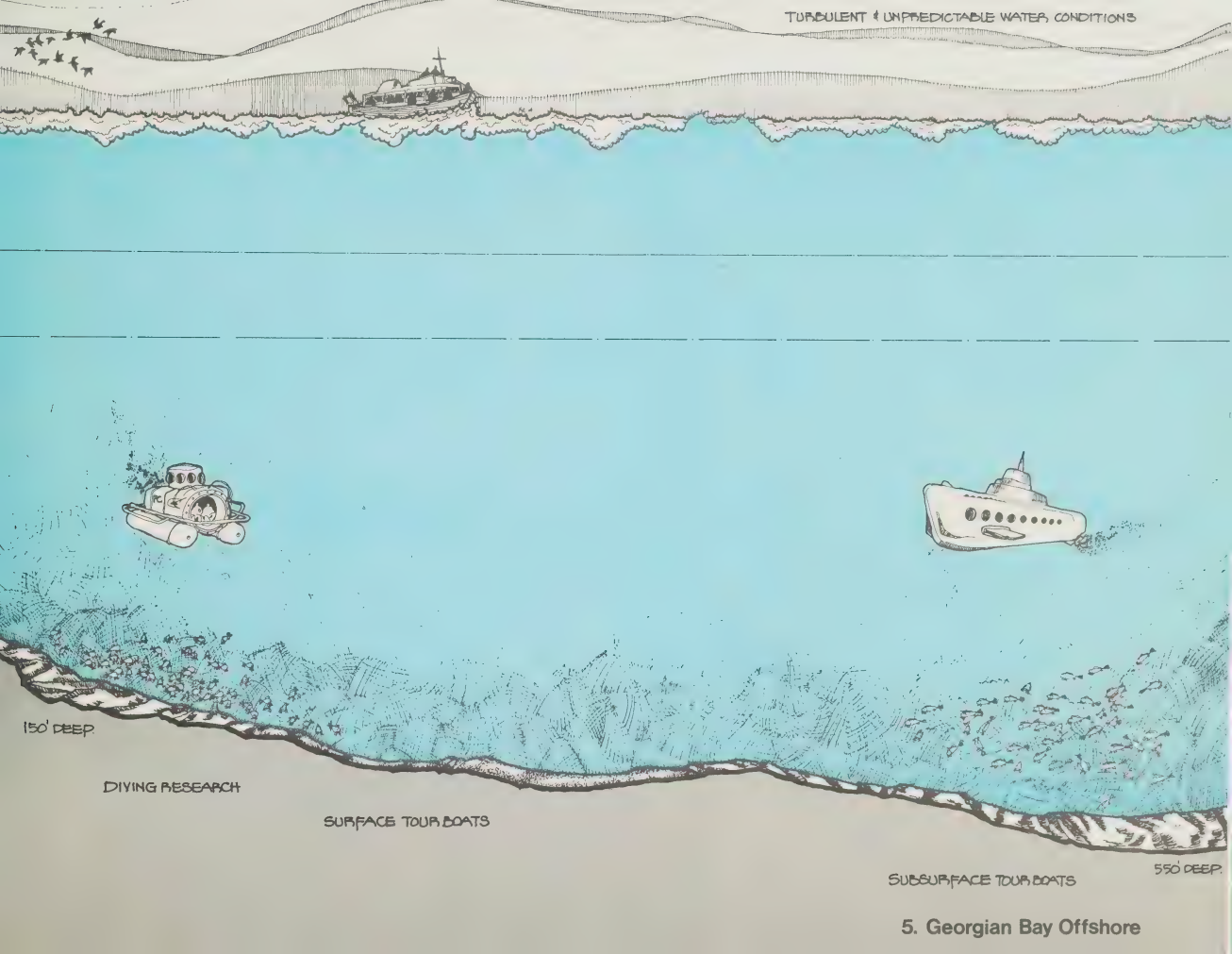
A. Non-Diving Activities

- Surface boat tours may occur with outstanding views of the Niagara Escarpment to Cabot's Head, various navigational lights, the islands, night skies, sunrises, sunsets, weather and water conditions.
- Submersible boat tours to view large schools of fish and the biological barrenness of the lake bottom.

B. Diving Activities

- Too deep for present sport diving uses and scuba equipment.

TURBULENT & UNPREDICTABLE WATER CONDITIONS



150' DEEP

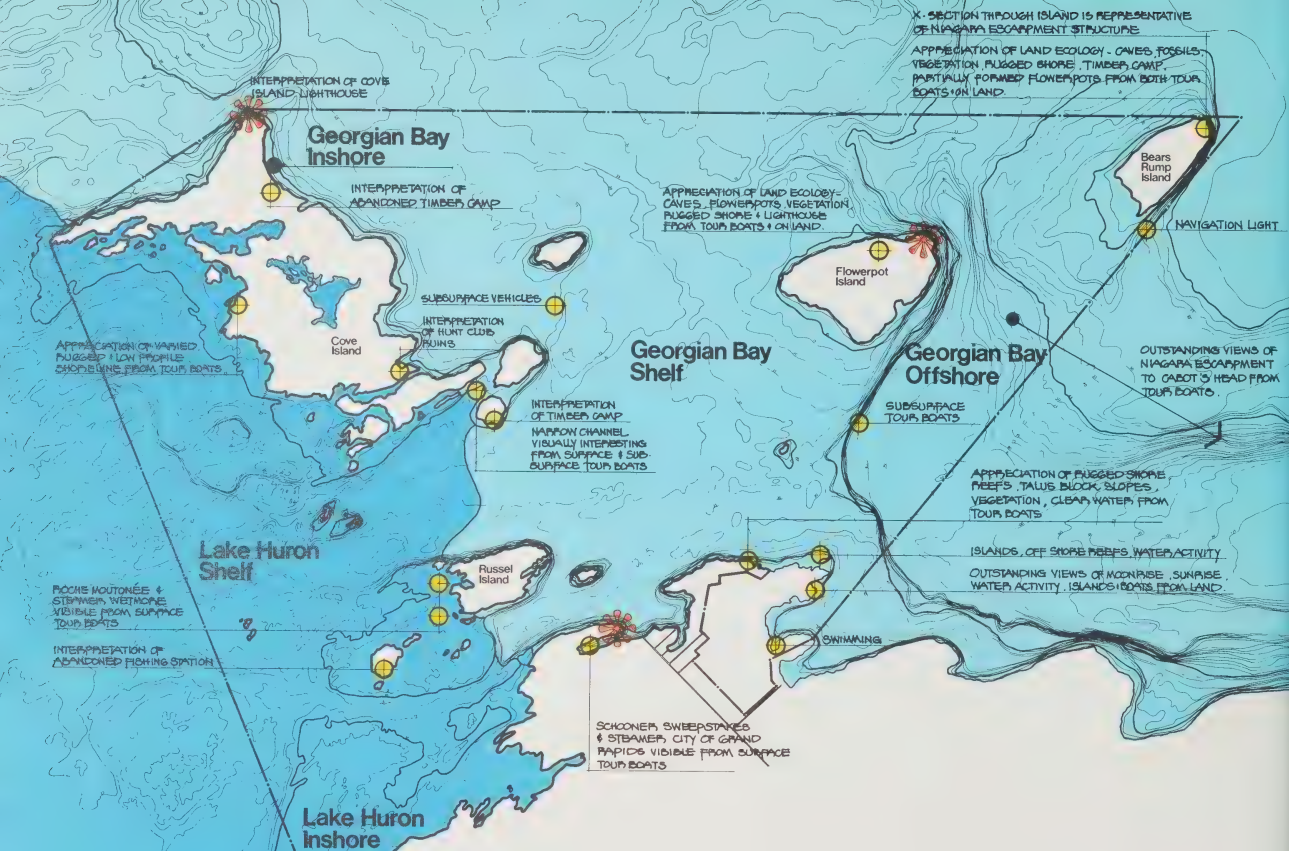
DIVING RESEARCH

SURFACE TOUR BOATS

SUBSURFACE TOUR BOATS

550' DEEP

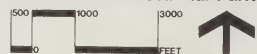
5. Georgian Bay Offshore

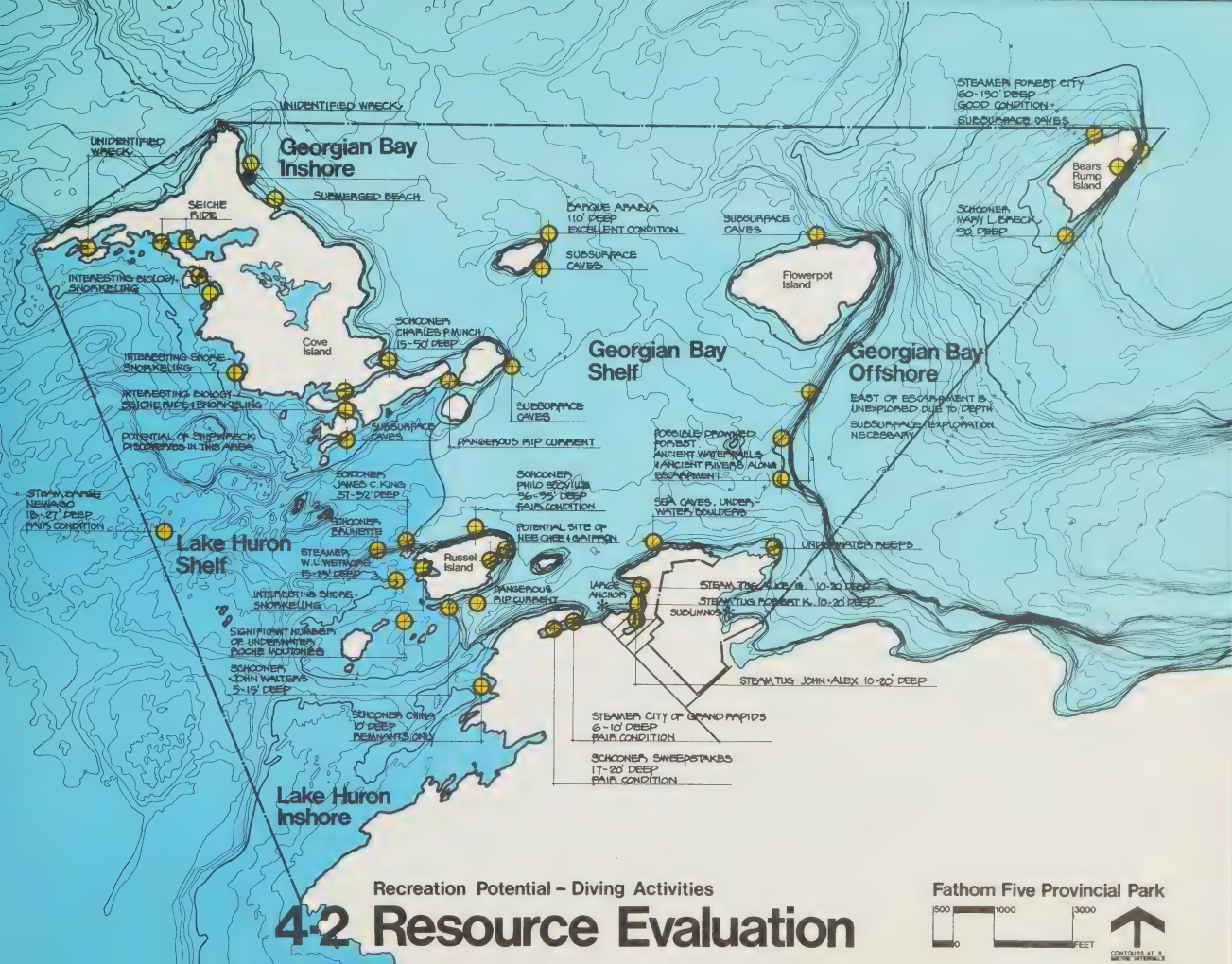


Recreation Potential – Non Diving Activities

4-2 Resource Evaluation

Fathom Five Provincial Park







● Scuba Diving

5. Development Proposals

5.1 Concept - Land Base

The Water Base component is, in essence, the focal point of the Park. In the last section, the Water Base is divided into 5 Resource Units with distinct features and characteristics common to each. These features will attract people with different interests as expressed in the Resource Evaluation Section in terms of Diving and Non-Diving Uses.

The related sketches, plans and written information of each Resource Unit provide the basis for activities in and on the water.

To complement this resource, the Land Base will provide an introduction to the Park, allow over-all appreciation of the features of the Water Base and provide a place from which most Park activities originate.

The Land Base includes some 450 acres of very rugged land close to Tobermory. The physical environment is shaped by a series of ridge lines running from the NE to the SW, some low, wet areas, open rockland vegetation, extensive coniferous forests, a spectacular, varied shoreline with steep cliffs, a small sandy cove, talus slopes, offshore reefs, and several small adjacent islands. The Land Base portion of the Park provides a setting for the proposed Park components and a permanent "natural area" for recreational activities.

Basic to the Park concept are five major components that will facilitate the use and appreciation of the resources:

1. Park Centre
2. Tobermory
3. Dive Centre
4. Information Centre
5. Accommodation Facilities

The main features of the architectural concept for Fathom Five Provincial Park grow from the uniqueness of its orientation and relationship to the water. The structures will have inherent in them a flexibility or "open endedness" which will allow change of programme and expansion in an easy and comprehensible way. The structures on this site are based on a three-dimensional lightweight post and beam framework, which will fit easily with the varying contours and natural conditions without resorting to traditional foundation walls. This provides a means by which nature can be integrated within the very fabric of the structure. Walls are merely a "skin" against climate and as an environmental "screen" which can be of a variety of materials, easy to change.

1. Park Centre

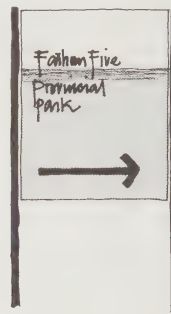
The proposed Park Centre is located on one of the most outstanding sections of the Georgian Bay shoreline at Dunks Point. The Centre is situated carefully at the edge of the water, taking advantage of the panoramic views from the site, built on both land and water, bridging across to islands and

providing a unique sub-surface walk. The purpose of the Centre is to explain to visitors by various means the features, both natural and man-made, and the activities which are inherent in this particular Park—giving him a sneak preview of the range of activities possible here. As the Centre from which most activity radiates, a visitor is subtly given an understanding of the Park programme and subsequently an opportunity to organize his time, activities and experiences while in the Park. The Centre absorbs Park visitors during all weather conditions, and in all seasons is flexible to changing needs and desires, and is a continuing point of orientation and involvement throughout the visitor's stay in the Park. The visitor's Park experience is enriched in the Centre by being exposed to the full range of Park activities on films, various displays, and a well-developed interpretive programme. The Park Centre will describe and involve visitors through film, displays and possibly in the future an underwater walk, remote underwater TV cameras focused on shipwrecks, and submarine trips. After this experience, visitors can take part in "on-site" Park activities, e.g. boat tours, scuba diving, or snorkeling with a greater understanding and therefore enjoyment of the Park resources.

2. Tobermory

Tobermory provides essential Park services such as accommodation, restaurants, stores, auto service and the ferry service. Most visitors will first arrive in Tobermory either by car off the ferry or from Highway # 6. Signage and an Information Centre in Tobermory will inform visitors of the activities and facilities in Fathom Five Provincial Park and the region. Good accessibility between Tobermory and the

Park Centre is essential to connect the services of Tobermory and the Park orientation programme at the Park Centre, especially for visitors who have limited time, e.g. waiting for ferry.



Even though Tobermory is not in the Park, it is essential that it retain the character and charm that is its major attraction at the present time.

3. Dive Centre

A Dive Centre located in Little Dunks Bay will be the focal point of all diving and snorkeling activity for the Park. Included in this structure would be administration facilities related to scuba diving, diver registration, checkout diving, dive boats, a radio station, etc; dive boat facilities such as sewage pumpout, gas and docks, and diver facilities such as washrooms, showers, sauna, lockers, meeting rooms and an air station. All dive boats would register a dive plan and depart from the Dive Centre, keeping radio contact when



5-1 Concept · Land Base

Fathom Five Provincial Park



necessary. This then becomes the organizational centre of all diving activity within the Park.

There are several advantages in locating the Centre for diving in the Park. First—diving is the only activity that can be easily removed from Little Tub Harbour, reducing increased pressures that are now evident and inevitable in the future. Second, scuba diving is one major Park activity that requires certain controls and therefore should be within the Park boundary. The Park Centre is accessible by path or road from the Dive Centre. A hyperbaric chamber, an essential element of safety in the Park, could be located in the Dive Centre.

4. Information Centre

As mentioned, many visitors will arrive in Tobermory before proceeding into the Park. It is recommended that a general Tourist Information Centre, including Park staff, Municipal staff, and Regional Tourist staff, be located in Tobermory to direct visitors to the Park and other areas of local and regional interest.

5. Accommodation Facilities

The increased numbers of people attracted to the area as a result of proposed Park facilities will require more accommodation. The camping development proposed for the Land Base would be low density, with each camping space carefully situated in order to preserve the natural characteristics of the site. Most accommodation will be provided outside the Park to prevent the natural area from becoming subjected to overdevelopment with subsequent environmental deterioration. The proposed campground area may be used

for day-use picnicking, setting up trailers for the day, and relaxing. The ultimate development of the accommodation facilities will depend on the degree of camping and other accommodation provided by private enterprise.

5.2 Development Details

The success of any development is not only based on a feasible concept, but on the detailed development recommendations for the various facilities and activities that are proposed in terms of siting and architecture. Although it is not the purpose of this report to propose specific detailed solutions, general recommendations are included to indicate the development of a specific “character” for Fathom Five Provincial Park. These suggestions will act as a guideline for ongoing work. Additional detailed thought will be required before actual construction begins.

1. Park Centre

The site characteristics that will shape the physical form of the structure are as follows:

- Visual orientation toward islands, boat runs, night lights on buoys and lighthouses, sunrises, sunsets, weather conditions, waves, view of escarpment to Cabot’s Head and rugged shorelines.
- Variety and interest of shoreline with offshore reefs, small islands, wave action from all directions except SW, visible colour differences in varying water depths, ice accumulation in reefs, flotsam and jetsam, and the rugged rocks along the shore.
- The northward underwater extension of the Niagara Escarpment is located in proximity to Dunks Point and therefore ties in closely with the terminus of the Bruce Trail.
- Biology that include fish and birds, due to offshore reef formations.

- Excellent scuba diving and snorkeling in the protected off-shore reefs.
- Land/water interface is particularly interesting here.

Programme of Requirements:

The basic programme which has been derived for the Park Centre defines only requirements. Sizes and specifics as to interpretive/exhibition areas will be determined at a later date.

Staff and Administration

- Control and Tickets
- Administration Offices
- Media, Historical and Research Library
- Biological Laboratory
- Common Storage Area

Public Areas

- Parking and Entry
- Information
- Permanent Exhibition Space
- Outdoor Exhibition—Man-made
- Outdoor Exhibition—Natural
- Exhibition Storage Facilities
- Aquatic Exhibition—Fish, etc.
- Island Walk
- Surface/Underwater Boat
- Meeting Place/Theatre/Lecture
- Outdoor Amphitheatre

Divers’ Facilities (Public)

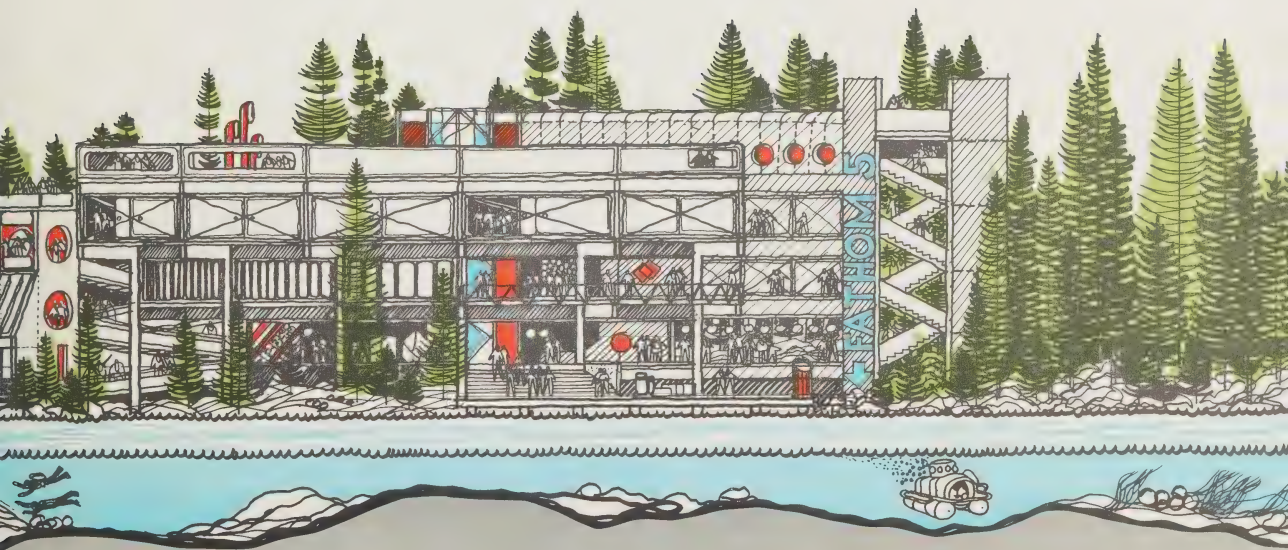
- Access/Control Point
- Changing and Locker rooms
- Washroom and Showers
- Access to Water



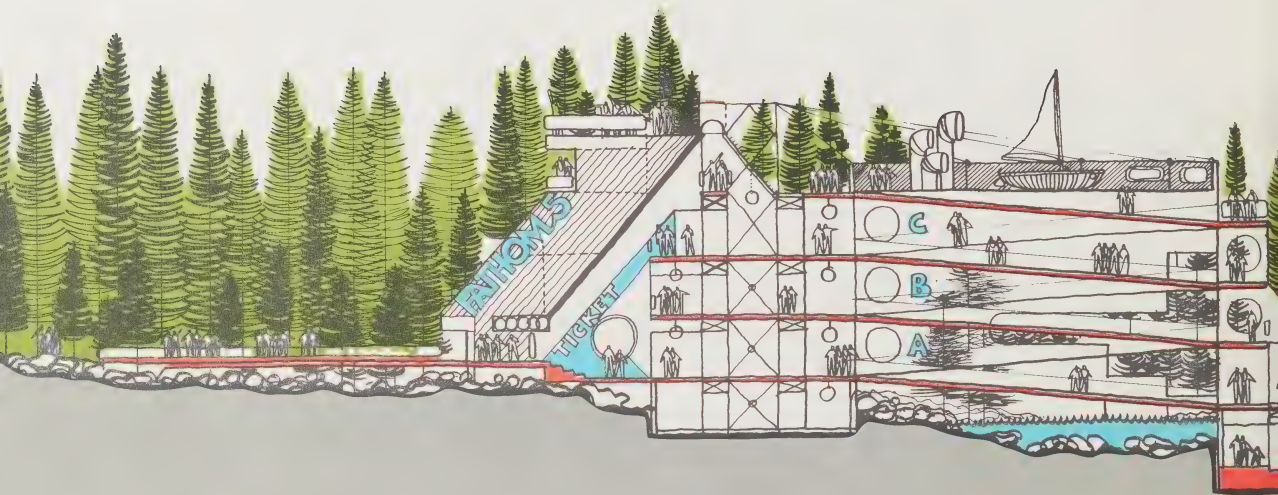
Perspective
Park Centre







Elevation From Water
Park Centre





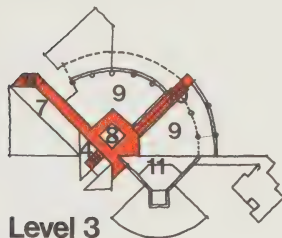
Section Through Building
Park Centre



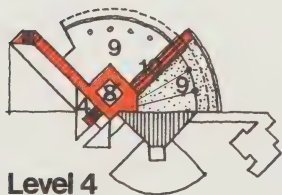
Level 2



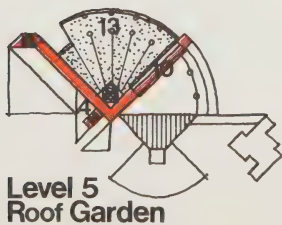
Level 1



Level 3



Level 4



**Level 5
Roof Garden**

Legend

- 1 divers
- 2 divers' facilities
- 3 mechanical and storage
- 4 washrooms
- 5 underwater walk return
- 6 underwater walk
- 7 administration offices
- 8 elevator
- 9 exhibition
- 10 ramp
- 11 upper gallery of theatre
- 12 conservation and display
- 13 ship's deck

Floor Levels

Park Centre

Common Building Areas

- Service Facilities and Receiving
- Storage
- Mechanical Room
- Electrical Room
- Washrooms

Basic Design Criteria for Building:

- Variety of movement systems within the building allowing for total or partial participation.
- Interaction between non-diving visitors and divers.
- Levels incorporating various interpretive themes.
- A place to view the water, islands, sunrises, sunsets, boats and extent of the Park.
- Proximity of parking area, experiences of entering and leaving the building.

Description:

The purpose of an interpretive centre is to explain to people by various means the factors, both natural and man-made, which occur in an area. In this case, the area is the tip of the Bruce Peninsula, rich in geology, biology, history and the underwater world. The physical act of interpretation may take various forms employing traditional methods—such as signage, display of artifacts, etc., physical experience and more progressive audio/visual methods.

The interpretive/exhibition spaces have remained non-specific so that they may change and respond to various interpretive programmes over the years. These are located at various levels in the building:

- A. Underwater—relating total experience of diving, ship-wrecks, geology, water clarity, etc;
- B. Surface—relating to rocks, trees, biology, islands, etc;
- C. Above Surface—relating to panoramic or distant views of islands and ships, exhibition/interpretation.

Therefore the building is, in reality, a series of experiences which may be enjoyed partially or totally.

The physical form of the building reflects the panoramic nature of the site and is built both on land and in the water, bridging across to the islands, and providing a unique sub-surface underwater walk. The stair, ramp, and control point provides a communication “hub” for the building, which runs vertically through the building with various levels radiating out from this point. Certain parts of the building, such as the underwater walk, floating dock, bridge, can retract within the building for protection in the winter season. The visual characteristics of the building are lightness and flexibility, as expressed by the structure and cladding systems employed.

2. Dive Centre

The Dive Centre is located on the north shore of Little Dunks Bay. The site is ideal for a structure the main purpose of which is to provide facilities for visitors planning to scuba dive or snorkel in the Park. Its location relates well to both the activities in Tobermory and in the Park Centre. The cove is protected from most bad weather with adequate water depths to accommodate relatively large dive boats with only minor modifications necessary.

The site characteristics that will influence the physical form of the structure are as follows:

- Deeper soils and flatter topography in the NE corner of the cove provides the more suitable building site.
- Dense growth of large spruce trees and the large limestone blocks on shoreline adjacent to cove.
- Broad boulder beach on the eastern side of the cove.

Programme of Requirements:

As with the Park Centre, the basic programme which has been derived for the Dive Centre defines only requirements. Sizes and specifics as to areas etc., will be determined at a later date.

Staff and Administration:

- Radio Room
- Office and Storage Area
- Hyperbaric Chamber (best location not determined yet)

Divers' Facilities (Public)

- Parking and Entry
- Information and Exhibition
- Diver Registration
- Diver Checkout
- Dive Boat Tickets
- Meeting Room
- Changeroom, Lockers
- Washrooms, Sauna, Shower
- Air Station

Dive Boat Facilities

- Pumpout
- Docks
- Gas Supply

Common Building Areas

- Service Facilities and Receiving
- Storage
- Mechanical Room
- Electrical Room

Basic Design Criteria for Building:

- Interaction between non-diving visitors and divers.
- Two distinct activities: scuba diving facilities and scuba diving administration, e.g. direct access from changerooms to dock space and dive boats.
- Proximity of parking area and drop-off zone.

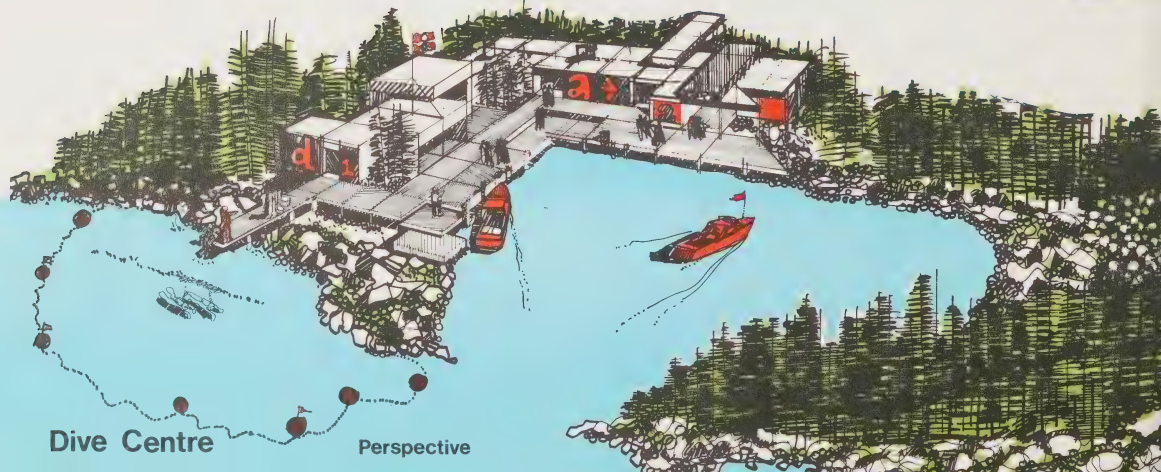
Description:

The building provides a facility related directly to the divers in Fathom Five Provincial Park. The basic elements are administration, diver facilities, dive boat docking and a check-out dive area. The site is located on the edge of a small protected cove, Little Dunks Bay. The existing contours are varied with large numbers of rocks, boulders, and coniferous trees. Keeping with the architectural concept for the Park, the building is a three-dimensional post and beam structure, floating above the natural contours as a series of platforms, which are integrated with the boating facility. A panelized system of solid, glass, or a combination, is used as function dictates, to enclose the various facilities. The building is thus "open-ended", providing infinite possibilities for expansion in the future.

- 1 tickets , information
- 2 vestibule
- 3 exhibition area
- 4 administration, storage, decompression chamber, radio station
- 5 tuck and dive shops
- 6 meeting room
- 7 washrooms, lockers, change room
- 8 sauna and shower
- 9 decks
- 10 diver 'check-out'



Plan



Dive Centre

Perspective

3. Accommodation Facilities

The accommodation facilities will be located on the western portion of the land base close to Tobermory and Highway #6. The basic purpose of these facilities is to provide a reasonable amount of accommodation for campers close to Tobermory and the Park facilities. The site is generally rugged except along the western edge where deeper soils, a greater variety of tree species and a subdued relief are characteristic.

The site characteristics that will influence the form of the campground are as follows:

- Deep soils, mixed trees species, and flat topography are characteristic on the west; thin soils, rock ridges, coniferous species and open rockland are characteristic of the eastern portion of the camp ground area.
- Several areas of open rockland vegetation occur in the centre of the camping area.
- Ridges and valleys run in a NE to SW direction.
- A major portion of the area is covered with coniferous tree cover.

Programme of Requirements:

The basic programme which has been derived for the accommodation facilities defines estimated requirements. Exact numbers, sizes of campsites and other specifics will be determined at a later date.

Staff and Administration

- Office and Storage Area
- Signs

Campers' Facilities

- Parking, Entry, Information
- Campsite Registration
- Washrooms, Shower, Laundry
- Paths
- Roads
- Trailer Pumpout
- Firewood Area

Basic Design Criteria for Layout of Campground:

- A circular “spine road” around the outside edge with cul-du-sacs or through roads running parallel to the rock ridges.
- Pathways to connect camping area to Tobermory and the Bruce Trail.
- Basic number of camping units to include 150 tent sites and 25 trailer sites individually situated on the site.

4. Park Circulation

The following is an outline of the major circulation systems in the Park.

A. Vehicular Circulation

The entrance to the Park occurs at the junction of Highway #6 and Nicholas Street. From the entrance a low-speed, narrow park road, with an alignment that responds to the various physical features of the site terminates at Dunks Point. Running perpendicularly to the park road, secondary roads provide access to the Dive Centre, Accommodation Facilities, the Park Centre parking lot and a parking lot for day-users. All parking would occur in small lots fitted carefully into the trees and rock ridges. Special signage graphics unique to Fathom

Five Provincial Park will be developed to identify the various facilities and activity areas in the Park. It is suggested that a bus service operate between the ferry dock parking lot and the Park Centre requiring appropriate road design considerations.

B. Pedestrian Circulation

The Bruce Trail will be retained with alternative routes provided, that bypass the Park Centre and the Dive Centre. Additional paths will be developed connecting all the major facilities and activities in the Park as illustrated on the circulation plan.

C. Bicycle Circulation

It is suggested that a bicycle rental concession be developed in Tobermory to provide access for boaters and visitors parked at the ferry dock to the various park facilities. The bicycle path would run parallel to, but independent of the park road, giving the park visitor an opportunity to appreciate the facilities and activities in the Park in a short time.

D. Tour Boat Circulation

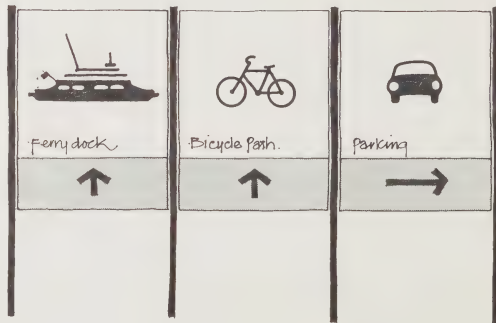
The tour boats will originate in Little Tub Harbour with information and tickets for the tours available in the proposed Information Centre. Various tours from Tobermory will be possible around the islands; to Flowerpot Island National Park; to Cove Island Lighthouse or to wrecks, biological, and geological features to be viewed from the surface. The routes of the tours would vary greatly with the weather and water conditions. Radio contact with the Dive Centre would be valuable to report accidents, unauthorized dive boats, and pending poor weather conditions.

E. Pleasure Boat Circulation

Private pleasure boats dock in Big and Little Tub Harbours where protection from the weather, and the necessary related services have developed. When navigating the Bruce Peninsula, pleasure boats tend to remain close to shore. Visitors wishing to scuba dive within the park from their private boats must register a dive plan at the Dive Centre.

F. Ferry Boat Circulation

With the ferry boats travelling regularly between Tobermory and South Baymouth, there is an opportunity for visitors to take day trips without their cars—spending a few hours on Manitoulin Island hiking and picnicking and then returning later to Tobermory.





4. Park Circulation

5-2 Development Details

Fathom Five Provincial Park



5. Visitor Activities

The fact that many different types of visitors will be attracted to the park suggests that a wide range of activities should be programmed to accommodate different interest groups. The following is a brief outline of the activities in which several typical visitor groups may participate at Fathom Five Provincial Park.

A. Scuba Divers

- Accommodation (hotel, motel, campsite) in Tobermory, Cyprus Lake Provincial Park, or Fathom Five Provincial Park.
- Orientation to all the resources of Fathom Five at the Park Centre—shipwrecks, geology, biology, history, diving films.
- Register in Dive Centre and arrange for a dive boat—pre-dive brief and departure.
- Diving on the shipwrecks, biological or geological areas.
- Return to Dive Centre—shower, sauna, swim, lounge.
- Nightlife in Tobermory—films, displays and underwater walk at Park Centre.

B. Non-Diving Family (Destination)

- Accommodation (hotels, motels, campsites) in Tobermory, Fathom Five, or Cyprus Lake.
- Visit Tobermory—the harbour, shops, restaurants, and Information Centre.
- Visit Park Centre—orientation, films, display, view of entire park from upper levels, and in the future the underwater walk, and underwater TV camera.

- Visit Dive Centre—appreciate the activities, equipment, hyperbaric chamber, radio room and people involved in the sport of scuba diving.

- Arrange for boat tour at Information Centre to Flowerpot Island National Park, Cove Island Lighthouse and along the western shore of Cove Island.

- Arrange for snorkeling lessons at Dive Centre and snorkeling trip to Cove Island.

- In the future, it is possible that non-diving visitors will depart from the Park Centre to view various underwater features from a sub-surface vehicle (submarine).

- A day trip on the ferry to Manitoulin Island—stopover, picnic or hiking on Manitoulin, then return later to Tobermory.

C. Non-Diving Family (Through — Short Term)

Car parked at ferry dock with four-hour wait until the next ferry with the following park activities possible:

- Short boat tour to Flowerpot Island National Park.
- Walk, ride rented bicycle, or take bus transit from ferry dock to Park Centre—films, underwater room, displays, etc. to get a feeling of the range of park facilities and activities. Short walk along Bruce Trail and to Little Dunks Bay and back to ferry dock.
- Visit Tobermory—harbour, restaurants, shops, and Information Centre.
- Ride bicycle to St. Edmunds Museum.

D. Property Owners

Full use of Park Facilities—Boat Tours, Park Centre, Dive Centre. The Park Centre will have changing films and displays and a continuous program.

E. Local People

Full use of Park Facilities with special use of Park Centre during the winter months for meetings, films, etc.

6. Interpretive Methods

A. Scuba Diving and Snorkeling

Scuba diving and snorkeling is one of the best methods to experience the underwater environment. Within Fathom Five, divers will constitute a relatively small but important segment of the total park users. Areas of specific interest to divers and snorkelers have been identified in the resources section but care must be taken to ensure that intensive use of these resources does not deteriorate the environment.



B. Surface Vehicles

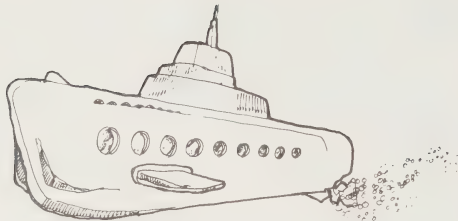
Several different kinds of surface crafts could be used to interpret both the surface and underwater environment such as:

- Deep draught tour boats with observation ports.
- Shallow draught tour boats with glass-bottom observation capability.
- Shallow draught tour boats with “over the side” observation capability.



C. Sub-surface Vehicles

● The possibility of using sub-surface vehicles (dry submersibles) is an interesting and exciting possibility for the future. At the present time, costs may be prohibitive to operate a submersible in the Park’s interpretive programme. In 1964, at the Swiss National Fair, extensive use was made of a submarine with a capacity of 40 passengers—20,000 people travelled to depths greater than 1,000 feet. This type of activity may be possible in the Park if it could be undertaken on a concession basis. The craft could be available for Park use during peak visitor periods and used on other projects such as research during the remainder of the year.



- Wet submersible vehicles (open to water and pressure) is a possible method for divers to appreciate the underwater environment. At the present time, they are difficult to operate and therefore should be available to qualified and experienced divers only.



D. Underwater Structures

Several underwater structures are possible in the Park:

- The underwater "room" in the Park Centre as shown on the architectural plans.

- A flexible underwater tunnel as shown on the plans, made of individual units with observation ports.
- Permanent or portable underwater structures similar to Sublimnos.

E. Media and Displays

Several methods of interpreting the water environment by use of media include:

- The use of underwater TV cameras fixed on special features such as a shipwreck or a fish-feeding area, to be viewed either in the Park Centre or on a surface tour boat.
- The use of flexible and innovative display techniques in the Park Centre.
- The use of advanced media techniques, especially film to portray the many resources of the Park to visitors.



6. Administration

6.1 Management Recommendations

The following are the proposed management guidelines as they relate to the major activities and facilities in the Park.

1. Scuba Diving

- Only certified divers possessing dive cards recognized by the Ministry of Natural Resources should be permitted to dive in the Park. The new Diving Log Book and Training Record should be instituted as the means of assessing a diver's ability and experience.
- Divers with questionable experience or possessing dive cards that are not presently recognized by the Ministry of Natural Resources may be required to take a checkout dive to have their diving ability confirmed.
- The Dive Centre would include diving administration facilities, e.g., diver registration and dive boat reservations etc., and diving service facilities e.g., washrooms, changerooms, sauna, air station, etc.
- All divers will register at the Dive Centre before participating in a dive.
- All scuba diving other than from Little Dunks Bay shore will take place from registered dive boats and registered private boats. A dive plan filed at the Dive Centre is necessary in order to dive from private boats.
- Scuba diving from the shore is possible in Little Dunks Bay adjacent to the Dive Centre and from the Park Centre at Dunks Point. Diving will be suitably separated from boating in these areas.

- Special areas for scuba diving should be zoned in Big Tub and Little Tub Harbours. As harbour use increases and the proposed park diving facilities are developed, scuba diving may have to be gradually phased out of the harbours.
- A warning system indicating underwater activity should be legislated within the Park boundary, e.g., diver's flag.
- A Dive Master will be responsible for every group diving from chartered or private boats.
- Literature containing a complete description of each dive site—the layout of the wreck, precautions, depths, hazards, interesting features, etc.—should be available to divers, snorkelers, and other visitors at the Dive Centre.

2. Snorkeling

- Snorkeling lessons and programmes should be developed and operate in conjunction with the Dive Centre.
- Special snorkeling tours to designated areas are proposed to operate from the Dive Centre.

3. Water Skiing

- Water skiing will be restricted in the vicinity of dive sites.

4. Safety Facilities

- Both a fixed and a portable hyperbaric chamber will be installed on the site or at the nearest hospital in case of an emergency decompression case.

- A safety patrol system will be incorporated into the park to ensure that the diving regulations are being observed and that a quick reaction to a boating or diving emergency is possible. A sophisticated radio system linking all dive boats, tour boats, the lighthouses, the Park Centre, Tobermory harbour, and the Ontario Provincial Police to the Radio Room in the Dive Centre will aid in boating or diving emergency situations.

- Weather warning devices should be located in Big and Little Tub Harbours and Little Dunks Bay to warn inexperienced boating visitors of changing weather and water conditions in the Park.

5. Charter Dive Boats

- All charter dive boats will be licenced to operate in the Park by the Ministry of Natural Resources. Such issues as numbers of boats, qualifications of operators, service and safety requirements are being determined partly through discussions with the present Boat Operators.
- A warning device such as a diver's flag will be honoured and flown on chartered dive boats throughout a dive.
- A dive plan will be filed at the Dive Centre before departure and radio contact with the Dive Centre should be maintained throughout the trip as necessary. It is important to know the whereabouts of the various dive boats and coordinate the use of the dive sites to prevent over-saturation of one site at a particular time.
- The charter dive boats should depart from and remain overnight in the protected cove adjacent to the Dive Centre.
- Anchor buoys should be located on major dive sites to anchor charter dive boats and private dive boats to avoid further deterioration of the shipwrecks.

6. Charter Boat Tours

- All chartered tour boats will be licenced to operate in the Park by the Ministry of Natural Resources. Such issues as the numbers of boats, qualifications of operators, service and safety requirements are being determined partly through discussions with the present Boat Operators.

- Tour boats should depart from and remain overnight in Little Tub Harbour.

- Additional island tours should be designed to incorporate some of the features identified in the Resource Evaluation Section.

- Tickets and information for boat tours should be available at a centrally located area, for example the Information Centre in Tobermory.

- Co-ordinating the use of sites that can be used by both dive boats and tour boats will be necessary to avoid conflicts.

7. Private Pleasure Boats

- Scuba diving should be permitted from private pleasure boats within the park. Authorization by the Ministry of Natural Resources for sea worthiness and diving support capabilities will be required for both local (seasonal authorization) and outside crafts (on-site authorization).

- The procedure for diving from a private pleasure boat is as follows:—

- A. At Dive Centre show seasonal boat authorization card or have an on-site boat inspection.
- B. Show Diving Certificates for all divers in the group.
- C. File a dive plan.

- All private pleasure boats registered in both Canada and the USA must abide by Government standards with regards to holding tanks and pump-out regulations.
- Private pleasure boats should not enter a dive site if a charter dive boat is present and is flying the dive flag.

8. Ecology

- Water quality analysis tests should be taken periodically to assure continued high water quality.
- Periodic checks of sensitive ecological areas should be made to ensure that increased visitor use (by boat, snorkeling, hiking, scuba diving, etc.) is not adversely affecting the area.
- The Management of the fragile ecological areas that have been identified in the Resources Evaluation Section is necessary.

9. Historical

- There will be no removal of artifacts from shipwrecks except for scientific study authorized by the Ministry of Natural Resources.
- An organized programme should be developed for locating additional shipwrecks in the area, under the auspices of the Ministry of Natural Resources.
- Detailed research programmes related to the known shipwrecks should be developed.
- Historical structures especially the Cove Island Lighthouse should be preserved and interpreted for park visitors.

10. Boundary

- Description of the Fathom Five Provincial Park boundary and park rules should be marked on all nautical charts of the area and should be sent to all mariners—"Notice to Mariners". A detailed nautical chart should be made available to park visitors.

11. Scientific Research

- Research by qualified institutions, agencies and private groups will be encouraged.
- All research programmes will be authorized by the Ministry of Natural Resources with the results of the research made available to the Ministry of Natural Resources.
- Research programmes should not be carried out which would involve any gross environmental changes.



6.2 Phasing

The following is a general outline of the proposed phases for development of Fathom Five Provincial Park. These phases do not relate specifically to a given time period but are intended to indicate the initial priorities to achieve a logical and organized development.

Phase 1

The purpose of the first phase is to consolidate and protect the proposed park area. This would include minor development and operational programmes in order to establish Fathom Five Provincial Park as an underwater park. The following are the main priorities of this phase:

- Boundary delineation and legislation.
- Publication of “Management Recommendations” and “Notice to Mariners” to park users.
- Development of safety facilities, equipment and procedures—e.g. hyperbaric chamber and patrol boats.
- Development of regional and park information services, management offices and co-ordination of various existing day activities such as scuba diving, boat tours, island tours, hiking and swimming.
- Additional research of the resources—underwater archeology, geology, flora, fauna, limnology, ecology and topography of both the Land Base and Water Base.
- Refinement of architectural and landscape architectural plans for the Park Centre, Dive Centre, bicycle path, walking path, park road, parking lots, signage, and campground on the land base.

Phase 2

Once the basic framework for the park’s operation has been established, the following priorities for Phase 2 will begin:

- Construction of the Land Base park road, day use parking areas, walking paths, bicycle paths, and realignment of part of the Bruce Trail.
- Construction of the Park Centre and dropoff roads, paths and parking lots.

Phase 3

As development of the Park Centre is proceeding Phase 3 may commence:

- Construction of the Dive Centre—parking lots, roads, drop-off zone, paths, docks and related scuba diving and snorkelling programmes.

Phase 4

The following priorities would be included in the Phase 4 development programme:

- Construction of the campground—roads, campsites, services, etc.
- Addition of several of the more sophisticated and expensive elements in the Park Centre such as the underwater walk and submersible tour boats.
- Possible extension of the Water Base administrative area toward Manitoulin Island and/or Cyprus Lake Provincial Park.

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